OUTPUT POWER

XMit 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2021-01-06	2022-01-06
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission output power (maximum average conducted output power) 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 5.2.4.4 of ANSI C63.26 was used to make the measurements. This method uses trace averaging across the ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding [10 log (1/D)], where D is the duty cycle in decimal, to the measured power to compute the average power during the actual transmission times

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (FXFC) as the original certification test. The FXFC antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the original certification testing) and antenna port 3 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.

The total average transmit power of all antenna ports was determined per ANSI C63.26-2105 paragraph 6.4.3.1.

OUTPUT POWER

element

TbtTx 2019.08.30.0 XMit 2020.12.30.0

EUT:	FXFC (FCC/ISED C2PC)			**Work Order:**	NOKI0029
Serial Number:	1M152245671			**Date:**	27-Apr-21
Customer:	Nokia Solutions and Networks			**Temperature:**	22 °C
Attendees:	David Le, John Rattanavong			**Humidity:**	51.8% RH
Project:	None			**Barometric Pres.:**	1014 mbar
Tested by:	Brandon Hobbs	**Power:**	54 VDC	**Job Site:**	TX05

TEST SPECIFICATIONS	Test Method
FCC 24E:2021	ANSI C63.26:2015
RSS-133 Issue 6:2013+A1:2018	RSS-133 Issue 6:2013+A1:2018

COMMENTS

All measurement path losses were accounted for in the reference level offest including any attenuators, filters and DC blocks. Band n2 carriers were enabled at maximmum power (80watts/carrier). The following is the output power measurements at the radio output ports. The output power was measured for a single carrier over the carrier channel bandwidth on port 3. The total output power for multiport (2x2 MIMO & 4x4 MIMO) operation was determined based upon ANSI 63.26 clauses 6.4.3.1 and 6.4.3.2.4 (10 log Nout). The total output power for two port operation is single port power + 3dB [i.e. 10log(2)]. The total output power for four port operation is single port power + 6dB [i.e. 10log(4)].

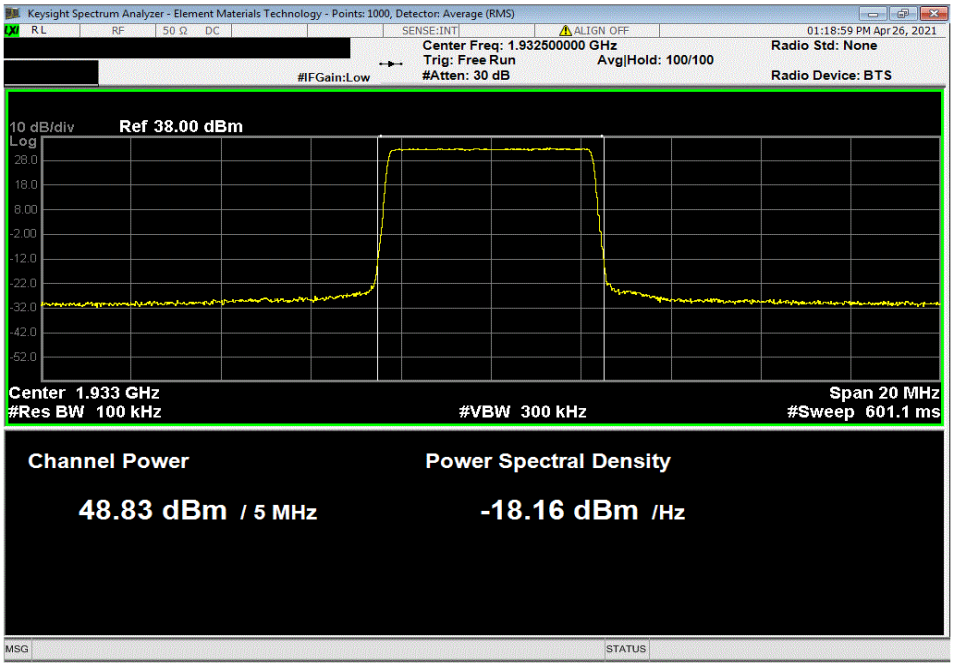
DEVIATIONS FROM TEST STANDARD

None

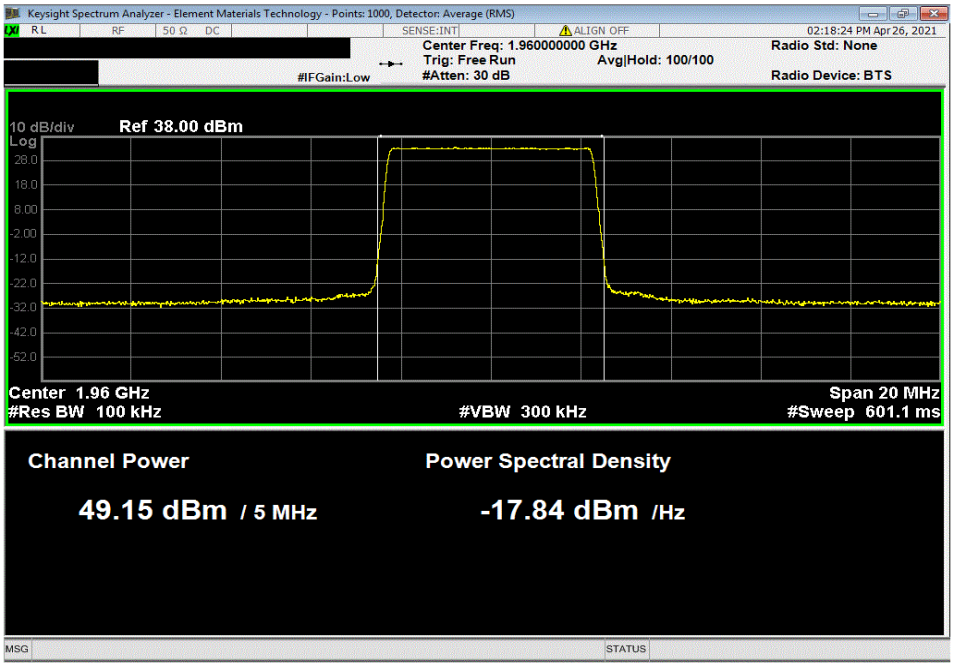
Configuration #	2	Signature

	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW
Band n2, 1930 MHz - 1990 MHz, 5G NR					
Port 3					
5 MHz Bandwdith					
QPSK Modulation					
Low Channel, 1932.5 MHz	48.829	0	48.8	51.8	54.8
Mid Channel, 1960 MHz	49.155	0	49.2	52.2	55.2
High Channel, 1987.5 MHz	48.900	0	48.9	51.9	54.9
16-QAM Modulation					
Low Channel, 1932.5 MHz	48.776	0	48.8	51.8	54.8
Mid Channel, 1960 MHz	48.871	0	48.9	51.9	54.9
High Channel, 1987.5 MHz	48.612	0	48.6	51.6	54.6
64-QAM Modulation					
Low Channel, 1932.5 MHz	48.911	0	48.9	51.9	54.9
Mid Channel, 1960 MHz	49.094	0	49.1	52.1	55.1
High Channel, 1987.5 MHz	48.820	0	48.8	51.8	54.8
256-QAM Modulation					
Low Channel, 1932.5 MHz	48.973	0	49.0	52.0	55.0
Mid Channel, 1960 MHz	49.146	0	49.1	52.1	55.1
High Channel, 1987.5 MHz	48.887	0	48.9	51.9	54.9
10 MHz Bandwdith					
QPSK Modulation					
Low Channel, 1935 MHz	48.974	0	49.0	52.0	55.0
Mid Channel, 1960 MHz	49.145	0	49.1	52.1	55.1
High Channel, 1985 MHz	48.930	0	48.9	51.9	54.9
16-QAM Modulation					
Low Channel, 1935 MHz	48.888	0	48.9	51.9	54.9
Mid Channel, 1960 MHz	49.033	0	49.0	52.0	55.0
High Channel, 1985 MHz	48.852	0	48.9	51.9	54.9
64-QAM Modulation					
Low Channel, 1935 MHz	49.037	0	49.0	52.0	55.0
Mid Channel, 1960 MHz	49.197	0	49.2	52.2	55.2
High Channel, 1985 MHz	48.918	0	48.9	51.9	54.9
256-QAM Modulation					
Low Channel, 1935 MHz	49.066	0	49.1	52.1	55.1
Mid Channel, 1960 MHz	49.220	0	49.2	52.2	55.2
High Channel, 1985 MHz	48.992	0	49.0	52.0	55.0
15 MHz Bandwdith					
QPSK Modulation					
Low Channel, 1937.5 MHz	48.993	0	49.0	52.0	55.0
Mid Channel, 1960 MHz	49.181	0	49.2	52.2	55.2
High Channel, 1982.5 MHz	48.993	0	49.0	52.0	55.0
16-QAM Modulation					
Low Channel, 1937.5 MHz	48.970	0	49.0	52.0	55.0
Mid Channel, 1960 MHz	49.112	0	49.1	52.1	55.1
High Channel, 1982.5 MHz	48.932	0	48.9	51.9	54.9
64-QAM Modulation					
Low Channel, 1937.5 MHz	49.022	0	49.0	52.0	55.0
Mid Channel, 1960 MHz	49.137	0	49.1	52.1	55.1
High Channel, 1982.5 MHz	48.978	0	49.0	52.0	55.0
256-QAM Modulation					
Low Channel, 1937.5 MHz	49.096	0	49.1	52.1	55.1
Mid Channel, 1960 MHz	49.156	0	49.2	52.2	55.2
High Channel, 1982.5 MHz	49.022	0	49.0	52.0	55.0
20 MHz Bandwdith					
QPSK Modulation					
Low Channel, 1940 MHz	49.211	0	49.2	52.2	55.2
Mid Channel, 1960 MHz	49.240	0	49.2	52.2	55.2
High Channel, 1980 MHz	49.101	0	49.1	52.1	55.1
16-QAM Modulation					
Low Channel, 1940 MHz	49.079	0	49.1	52.1	55.1
Mid Channel, 1960 MHz	49.166	0	49.2	52.2	55.2
High Channel, 1980 MHz	49.060	0	49.1	52.1	55.1
64-QAM Modulation					
Low Channel, 1940 MHz	49.141	0	49.1	52.1	55.1
Mid Channel, 1960 MHz	49.218	0	49.2	52.2	55.2
High Channel, 1980 MHz	49.087	0	49.1	52.1	55.1
256-QAM Modulation					
Low Channel, 1940 MHz	49.193	0	49.2	52.2	55.2
Mid Channel, 1960 MHz	49.278	0	49.3	52.3	55.3
High Channel, 1980 MHz	49.129	0	49.1	52.1	55.1

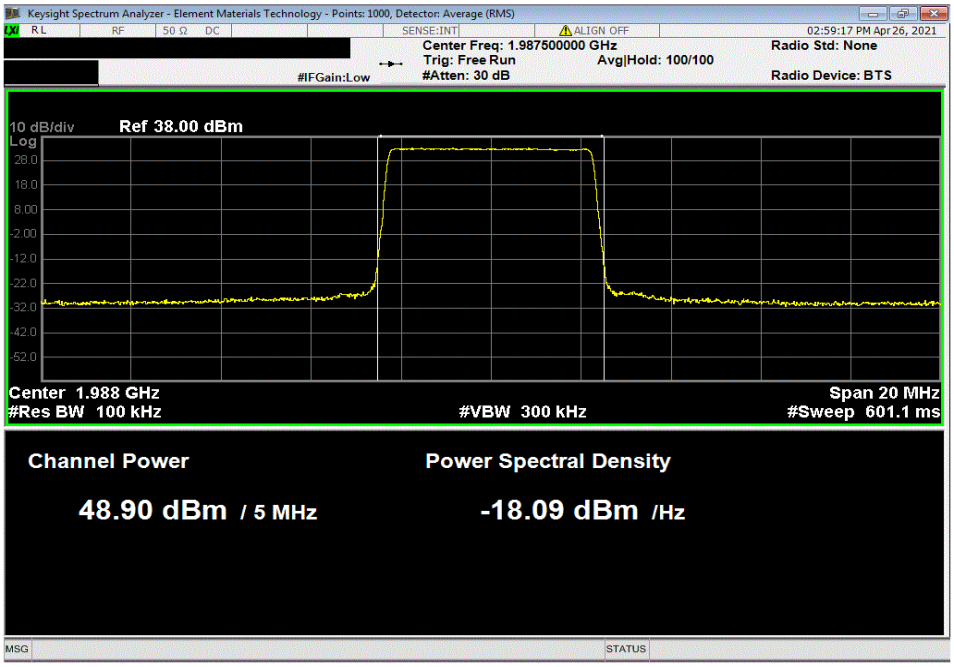
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, QPSK Modulation , Low Channel, 1932.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.829	0	48.83	51.83	54.83	



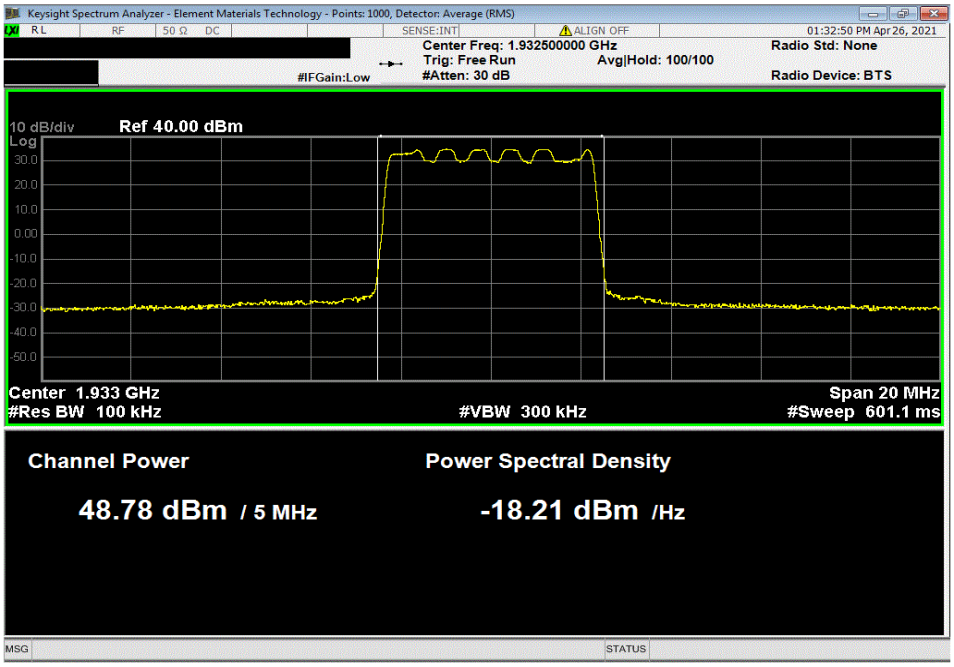
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.155	0	49.16	52.16	55.16	



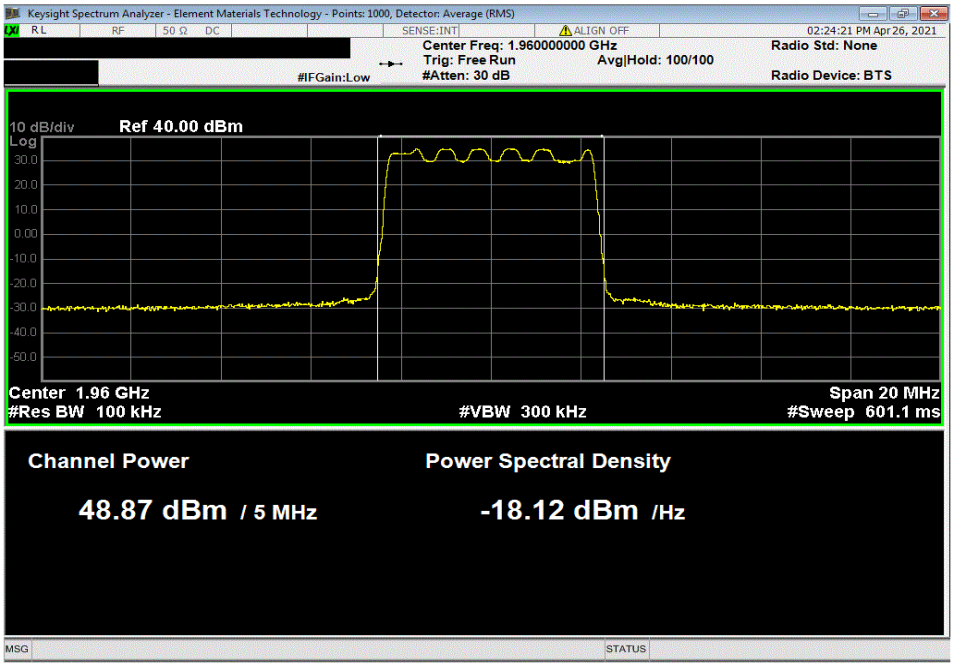
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, QPSK Modulation , High Channel, 1987.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.9	0	48.90	51.90	54.90	



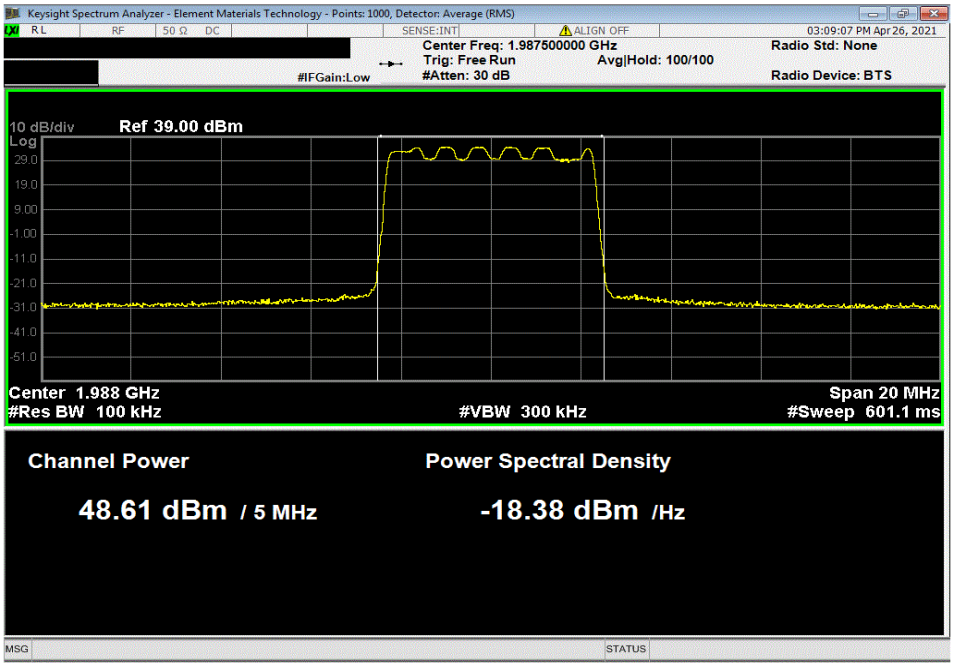
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1932.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.776	0	48.78	51.78	54.78	



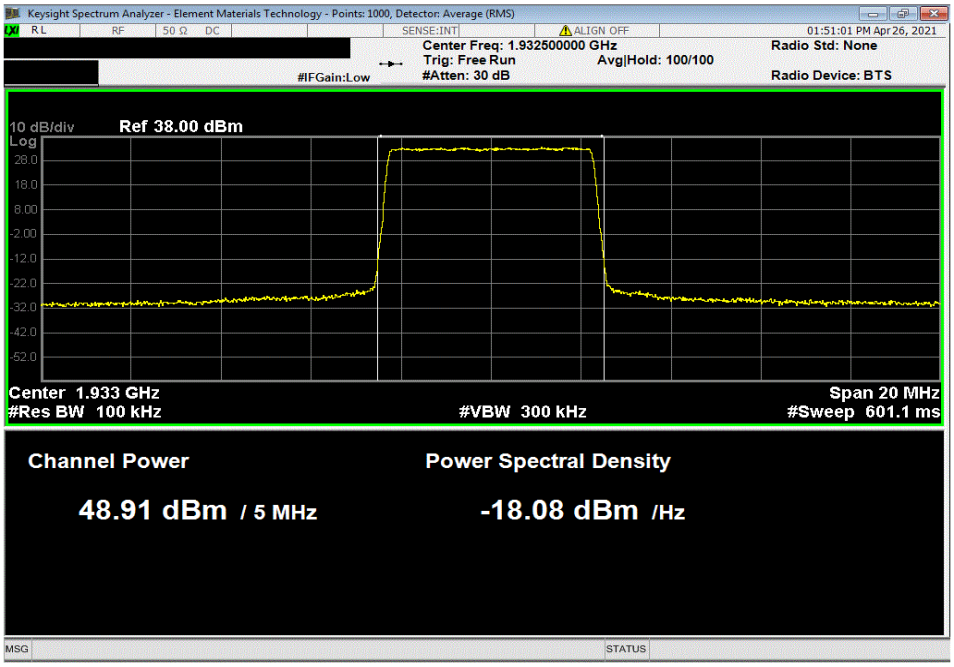
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.871	0	48.87	51.87	54.87	



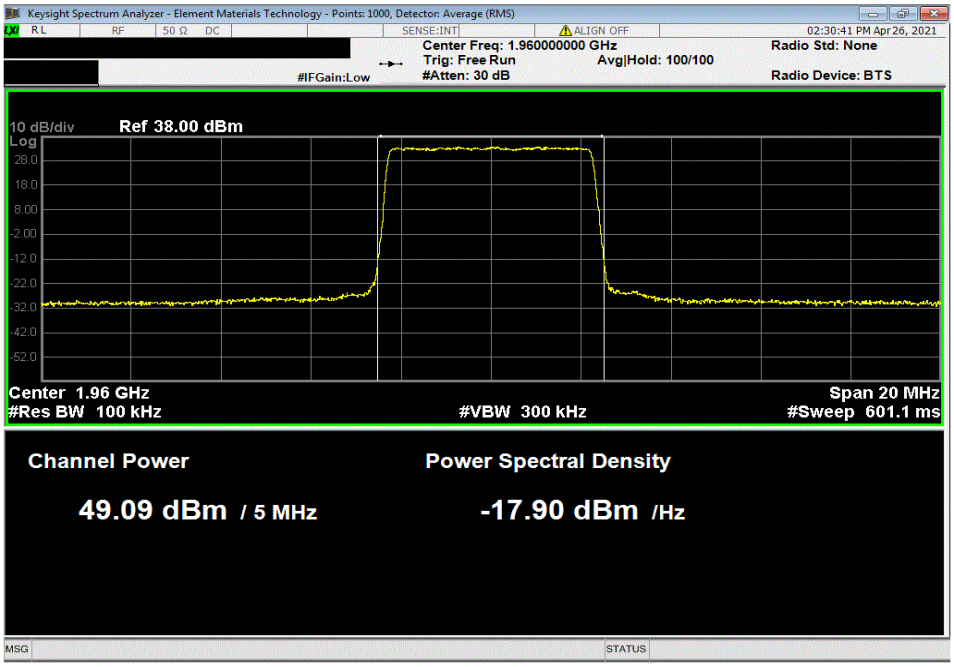
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 16-QAM Modulation, High Channel, 1987.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.612	0	48.61	51.61	54.61	



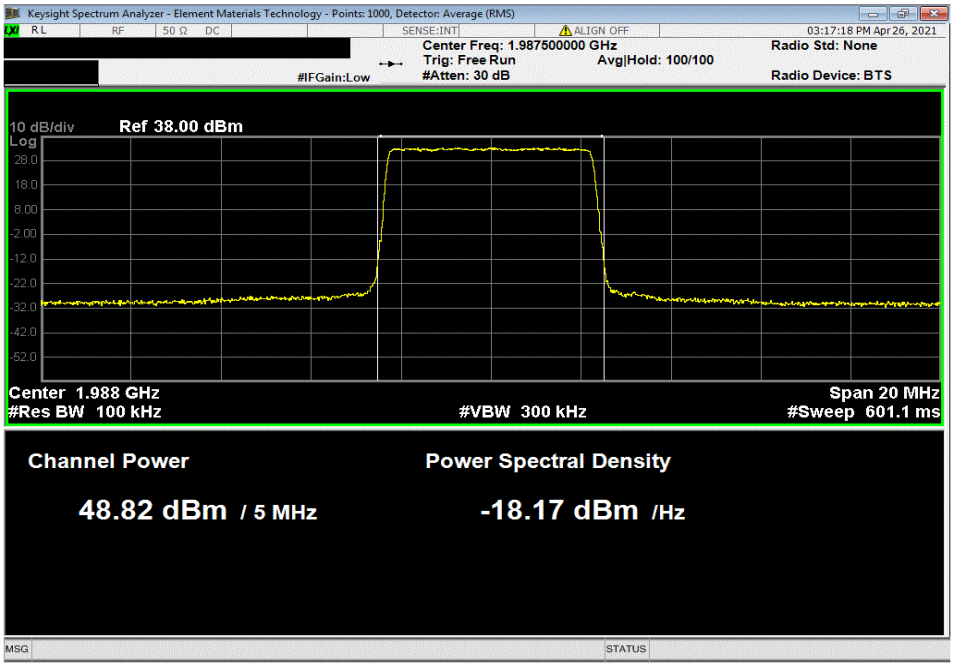
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1932.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.911	0	48.91	51.91	54.91	



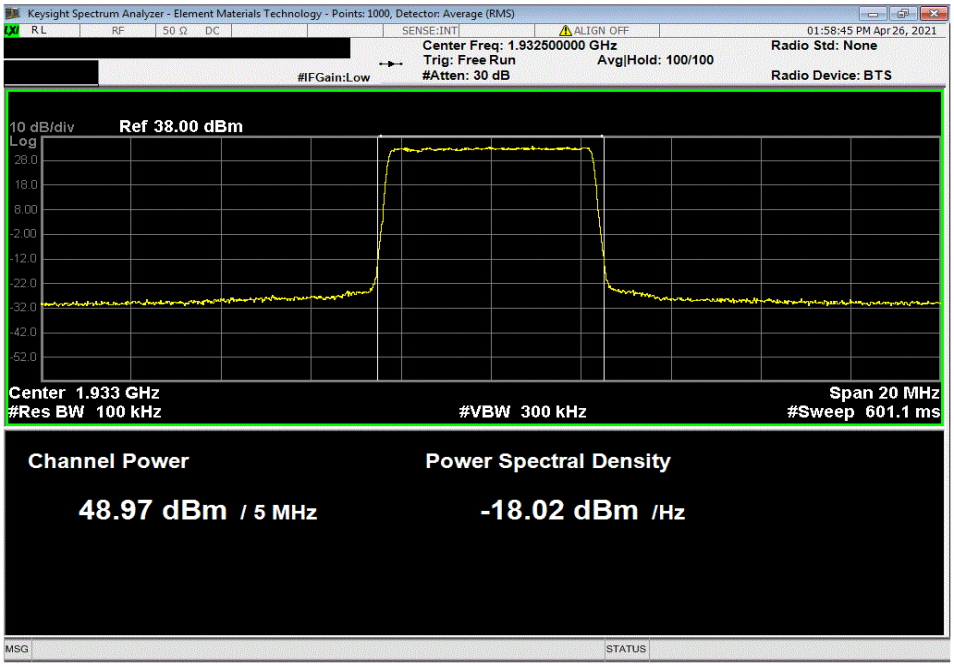
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.094	0	49.09	52.09	55.09	



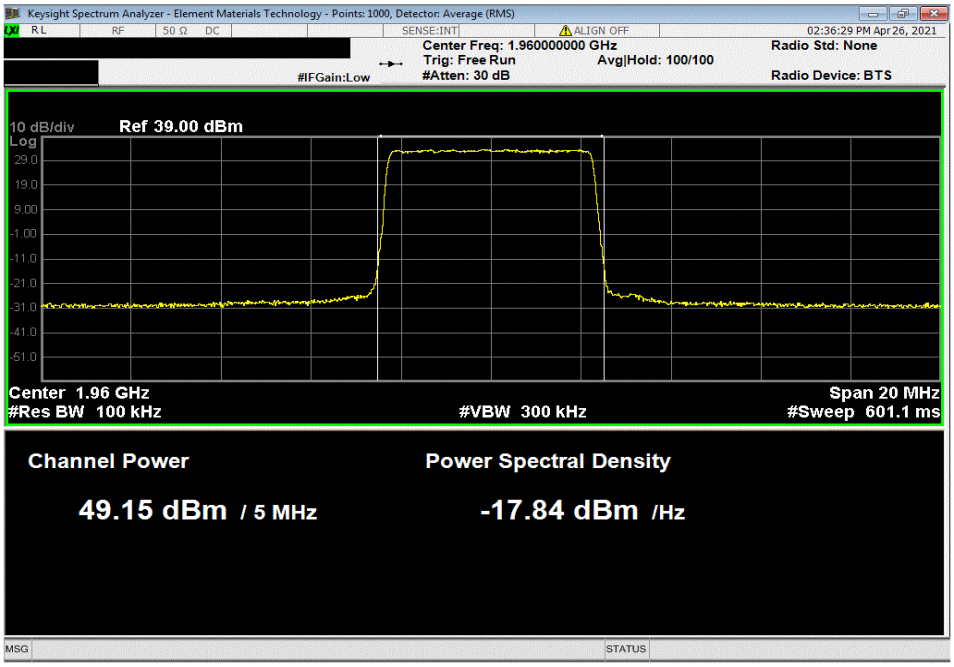
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 64-QAM Modulation, High Channel, 1987.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.82	0	48.82	51.82	54.82	



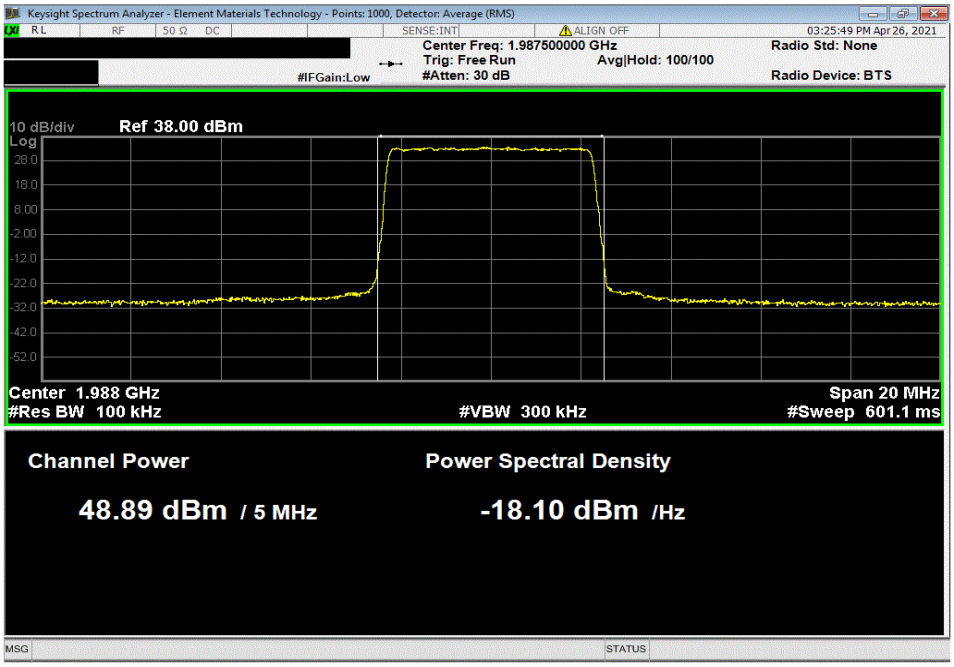
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1932.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.973	0	48.97	51.97	54.97	



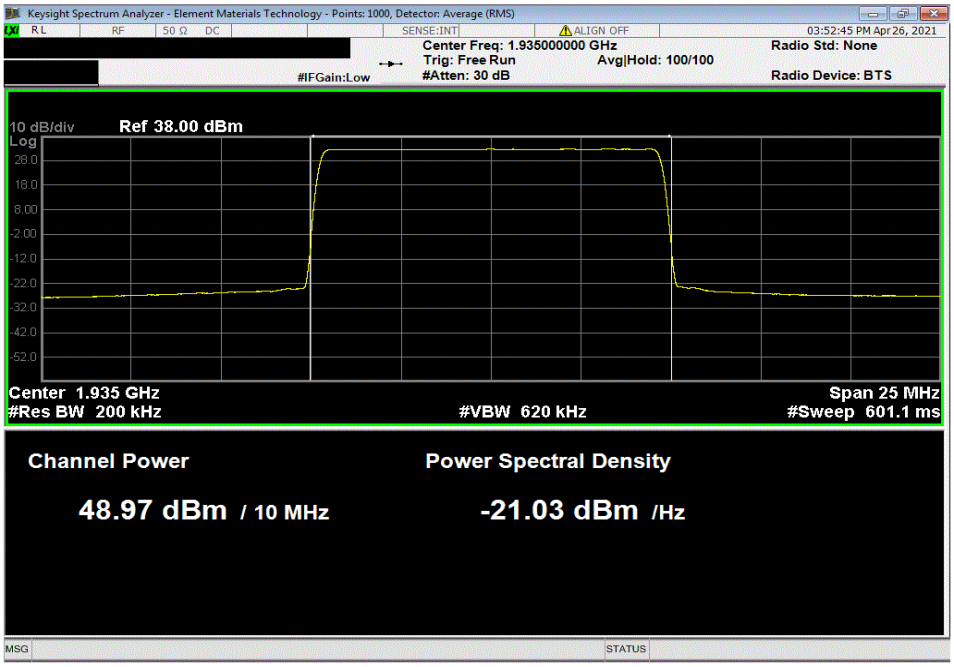
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.146	0	49.15	52.15	55.15	



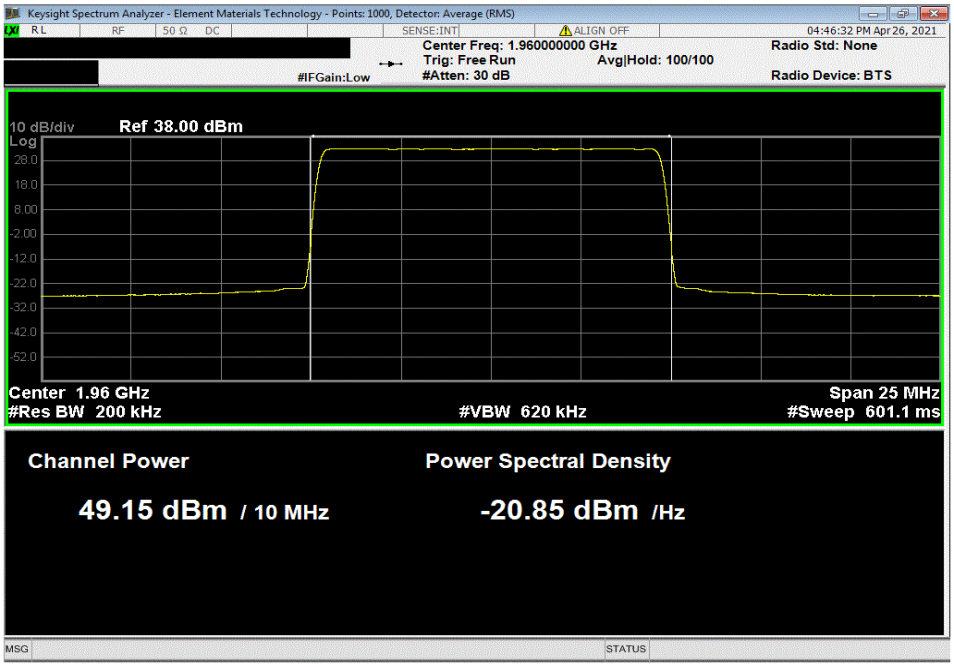
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 256-QAM Modulation, High Channel, 1987.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.887	0	48.89	51.89	54.89	



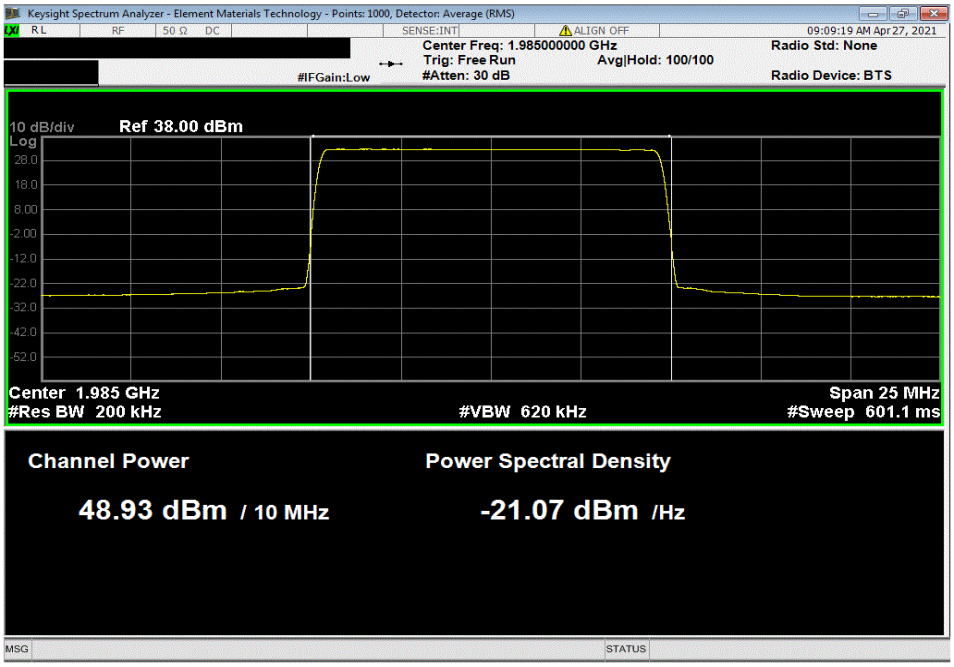
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, QPSK Modulation , Low Channel, 1935 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.974	0	48.97	51.97	54.97	



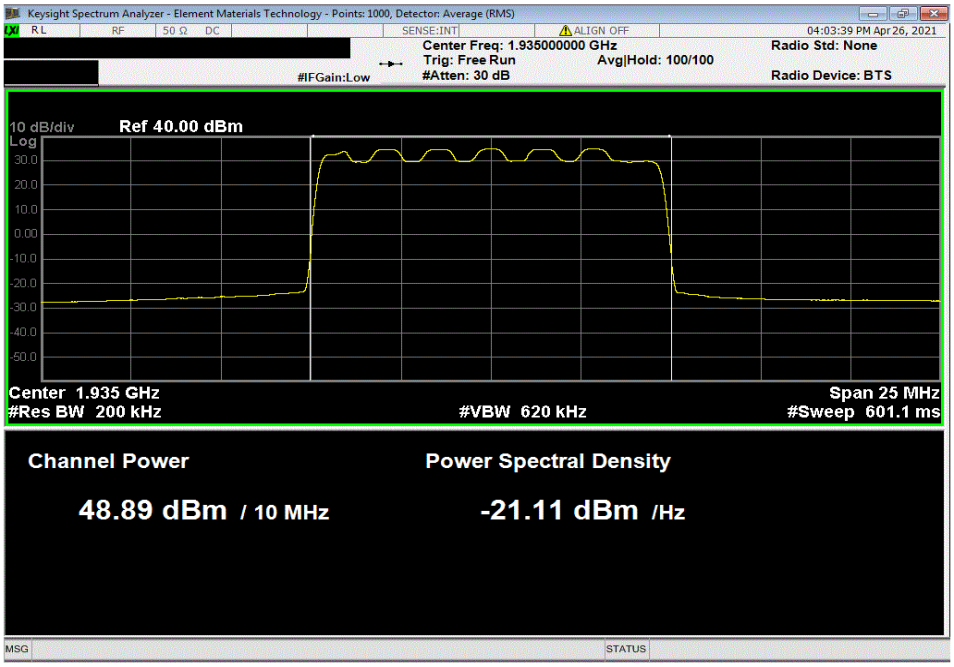
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.145	0	49.15	52.15	55.15	



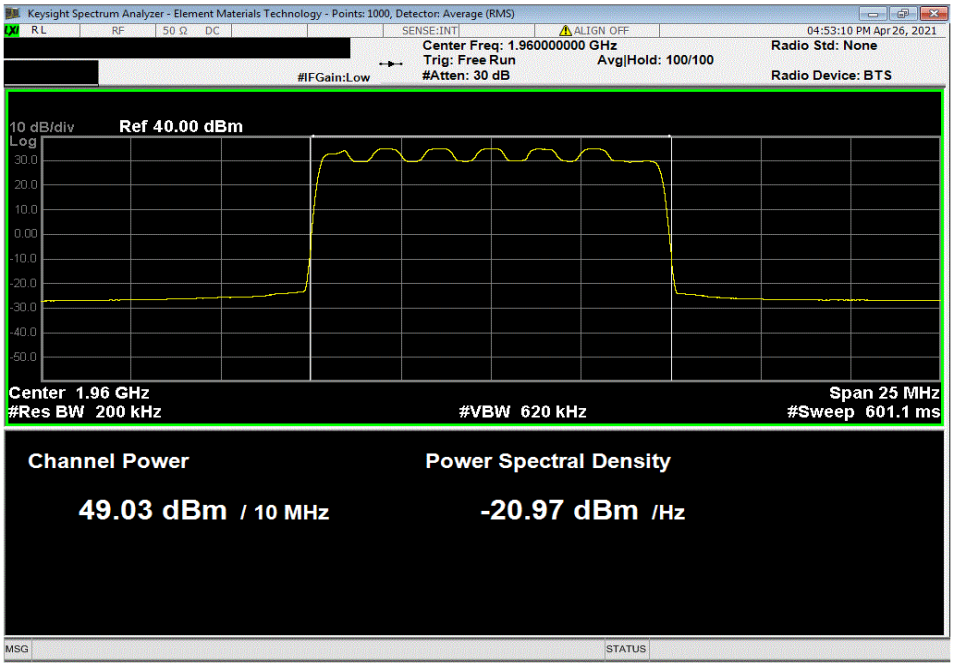
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, QPSK Modulation , High Channel, 1985 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.93	0	48.93	51.93	54.93	



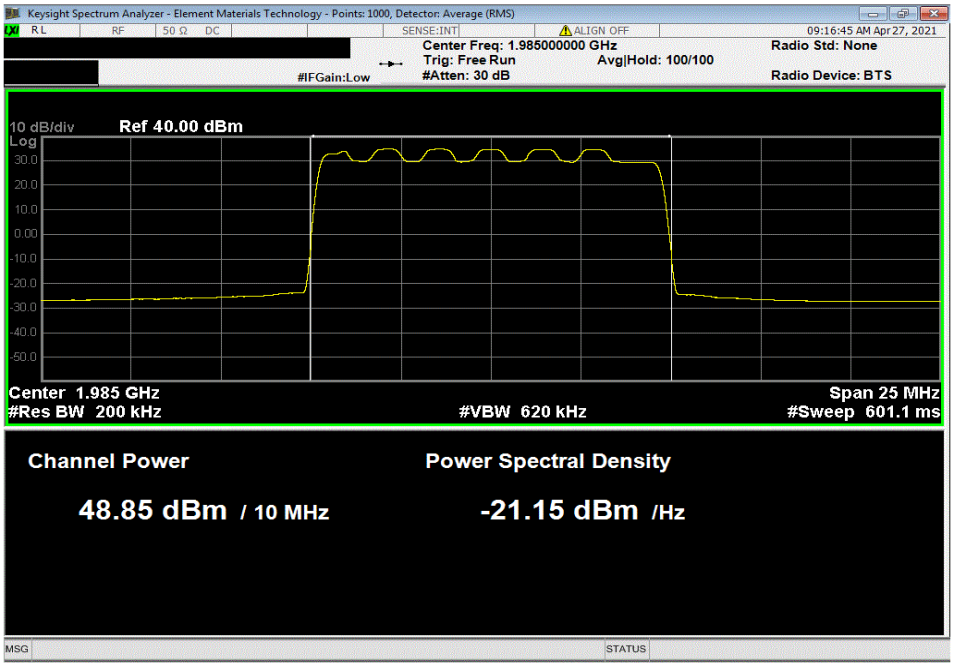
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1935 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.888	0	48.89	51.89	54.89	



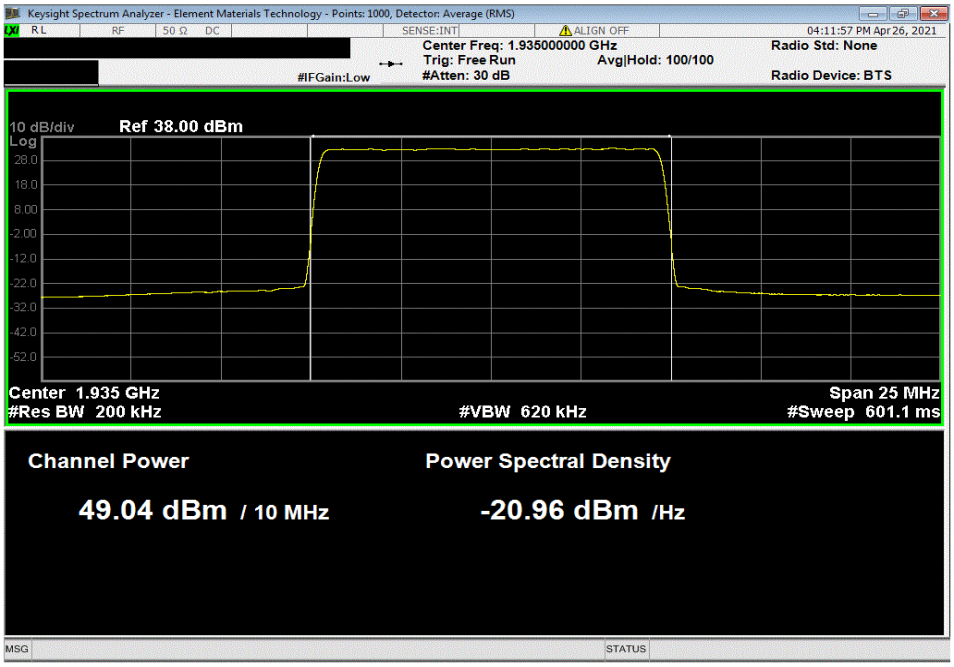
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.033	0	49.03	52.03	55.03	



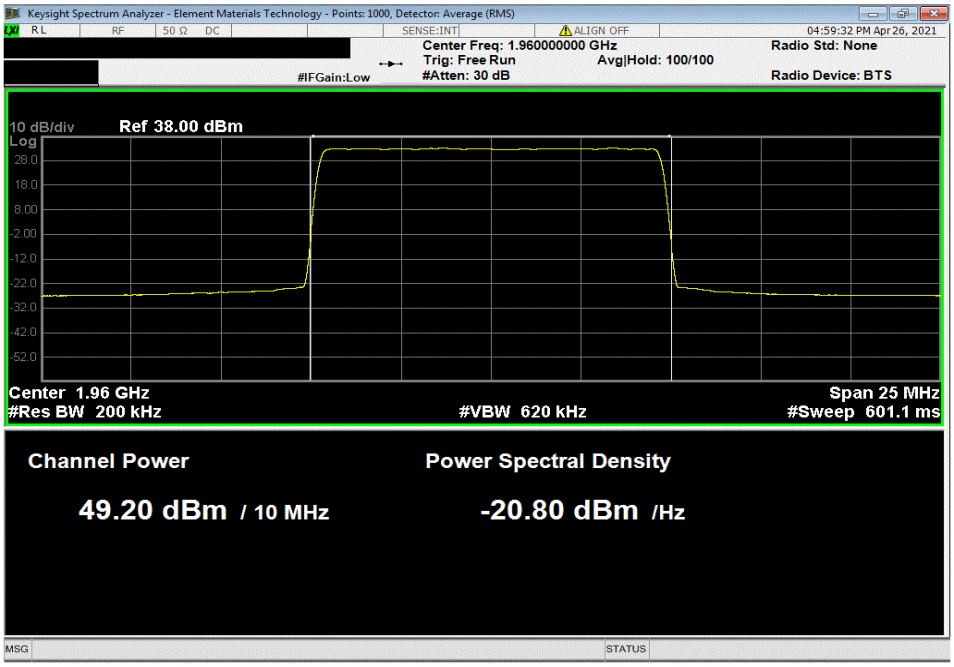
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 16-QAM Modulation, High Channel, 1985 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.852	0	48.85	51.85	54.85	



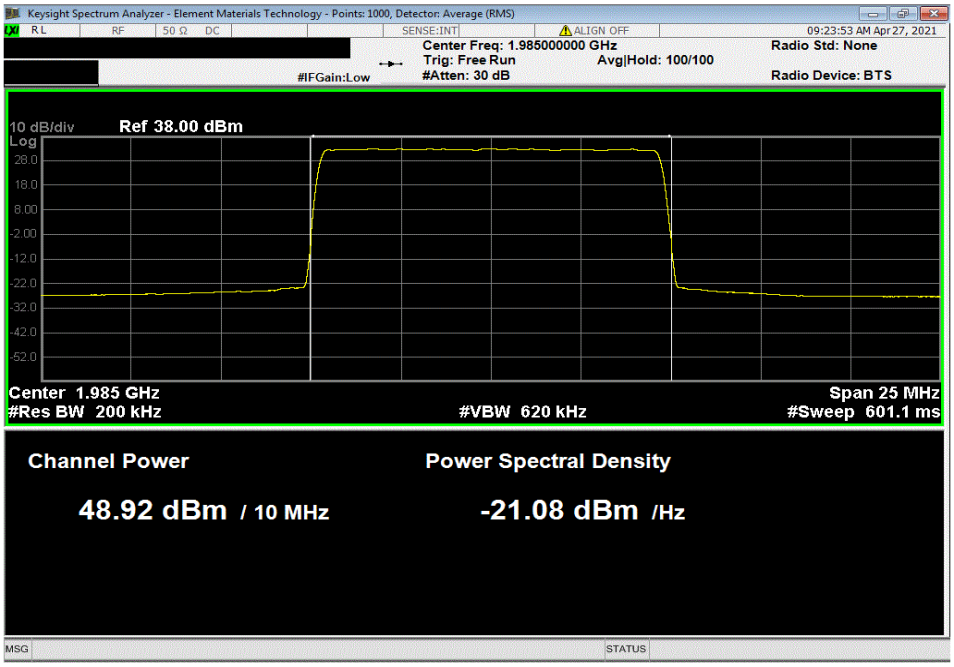
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1935 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.037	0	49.04	52.04	55.04	



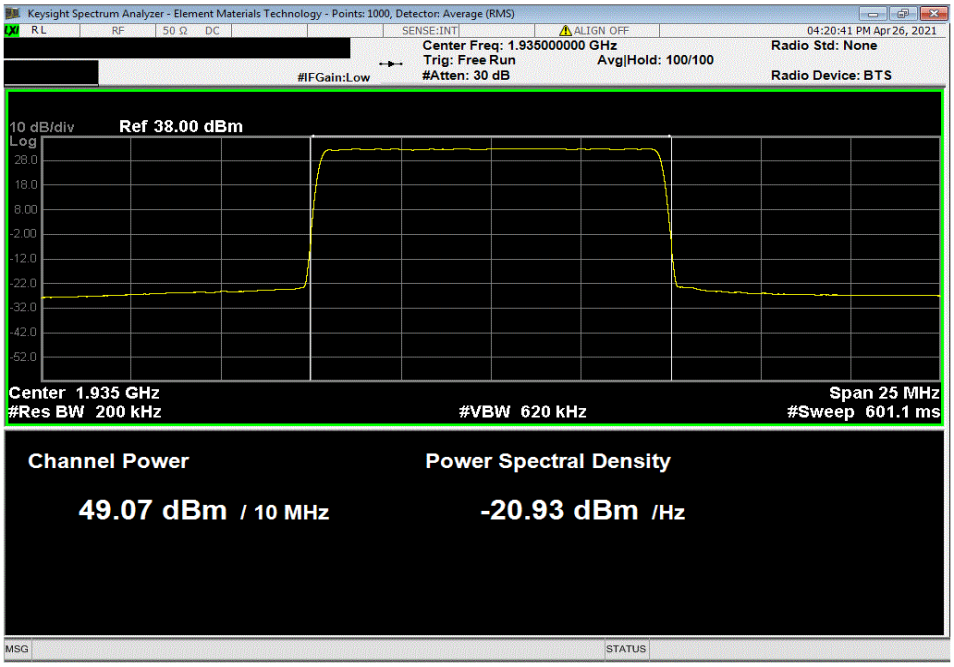
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.197	0	49.20	52.20	55.20	



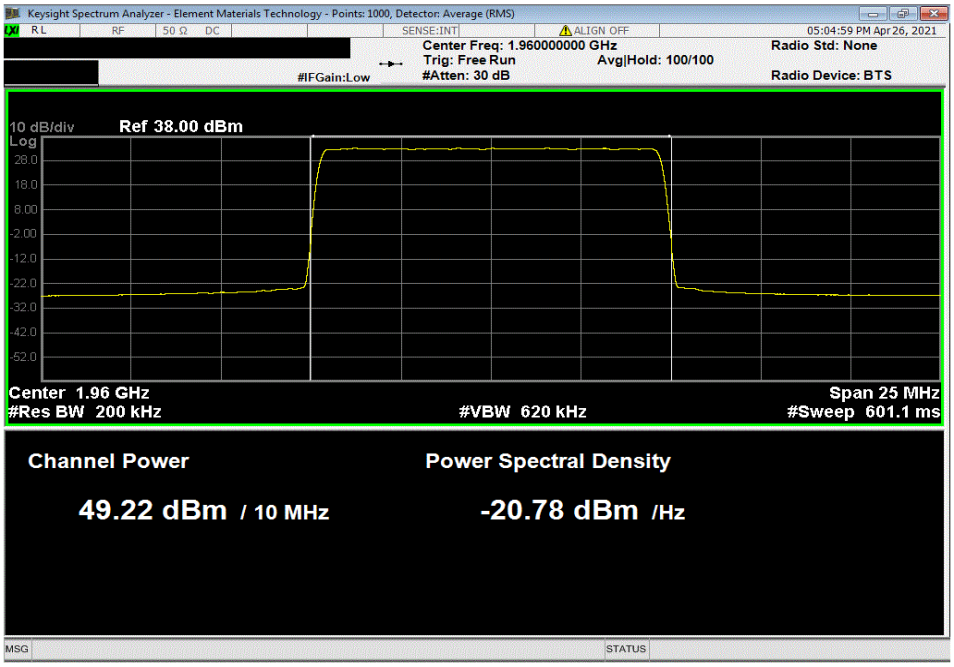
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 64-QAM Modulation, High Channel, 1985 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.918	0	48.92	51.92	54.92	



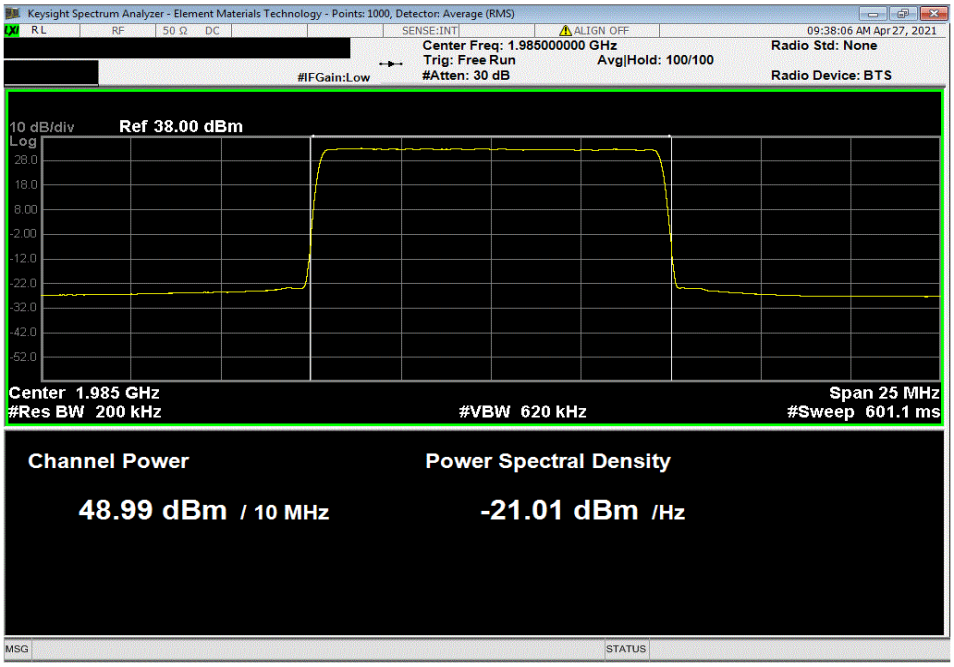
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1935 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.066	0	49.07	52.07	55.07	



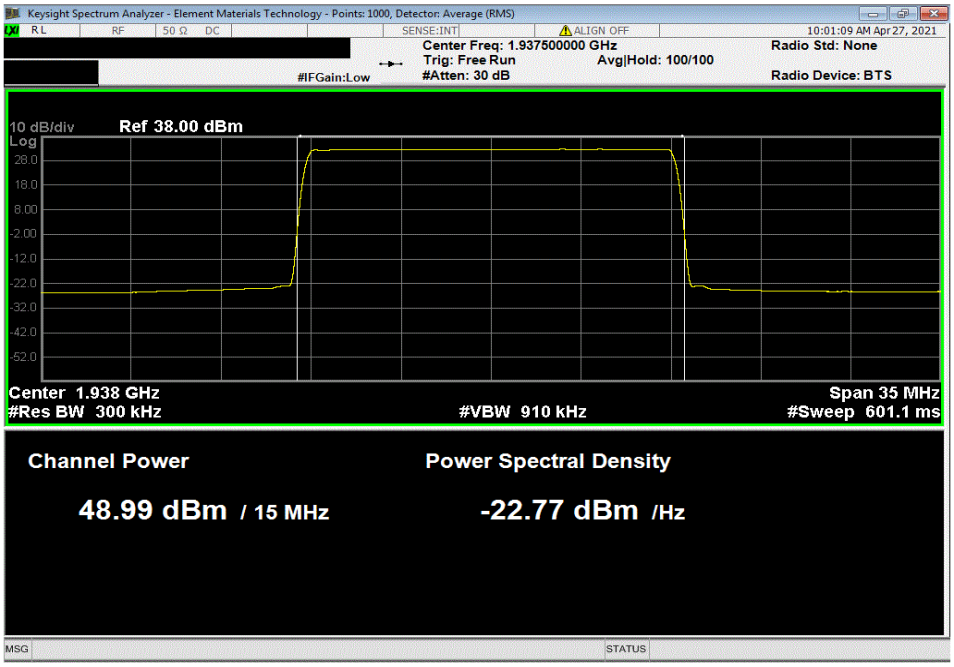
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.22	0	49.22	52.22	55.22	



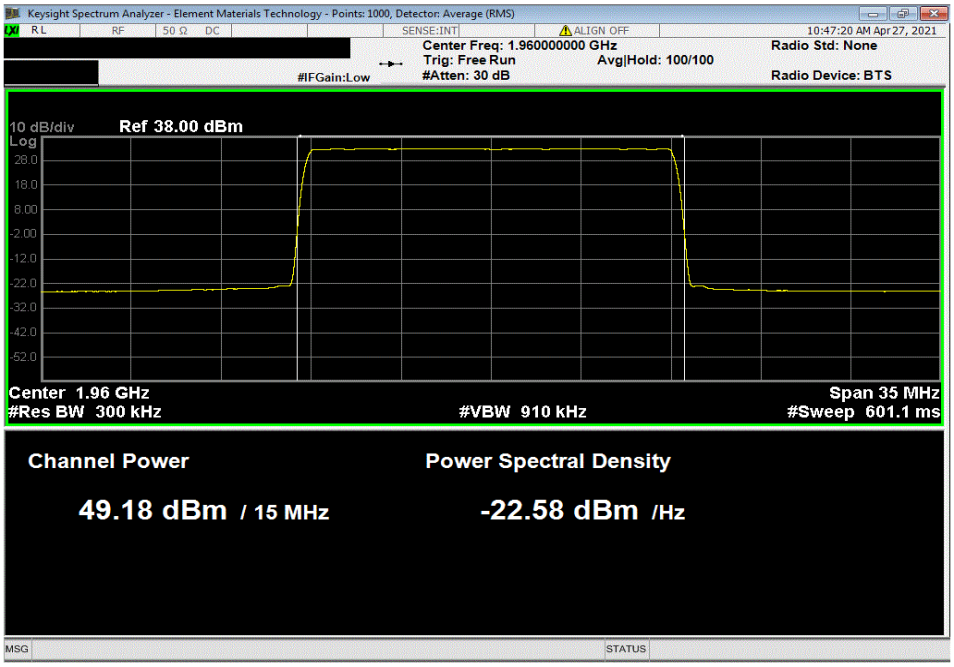
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 256-QAM Modulation, High Channel, 1985 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.992	0	48.99	51.99	54.99	



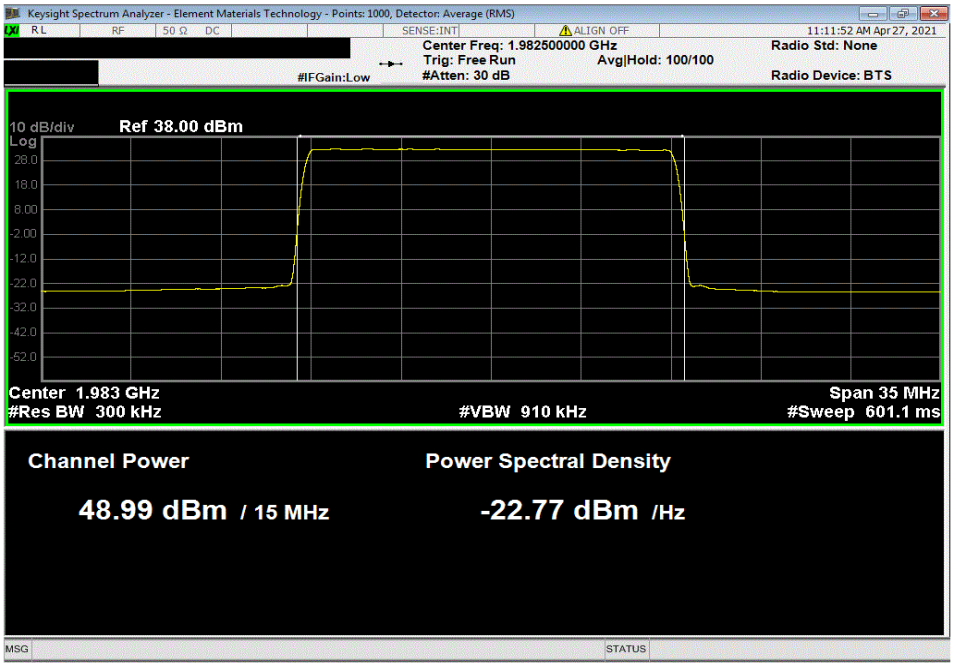
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, QPSK Modulation , Low Channel, 1937.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.993	0	48.99	51.99	54.99	



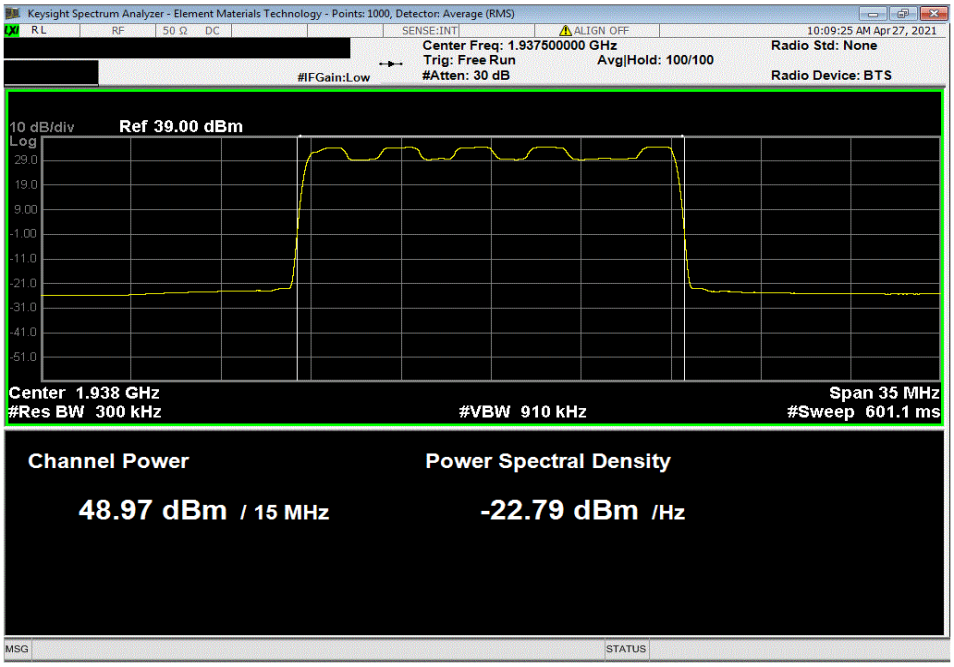
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.181	0	49.18	52.18	55.18	



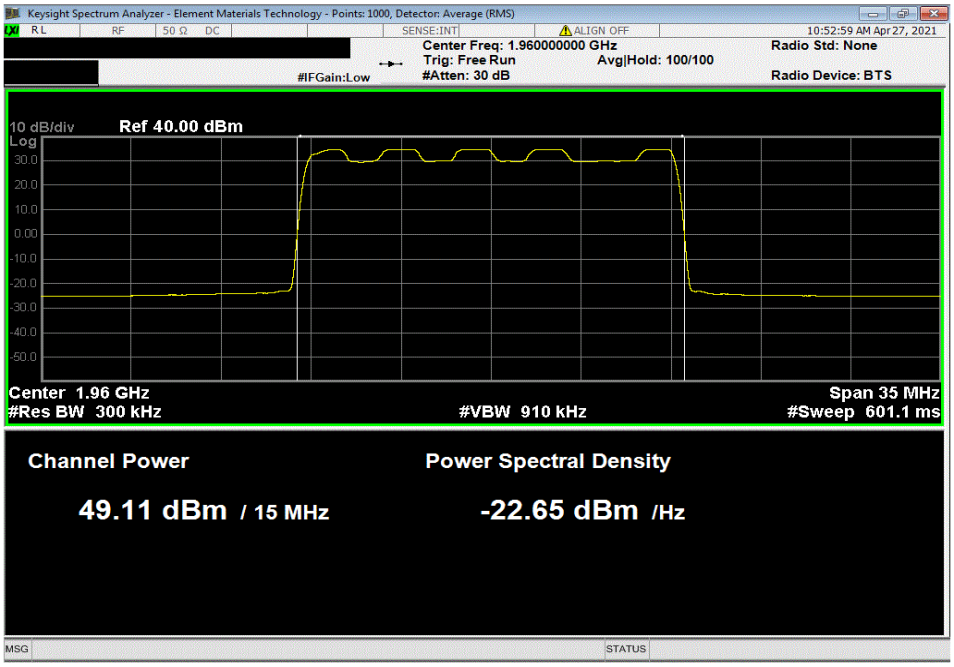
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, QPSK Modulation , High Channel, 1982.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.993	0	48.99	51.99	54.99	



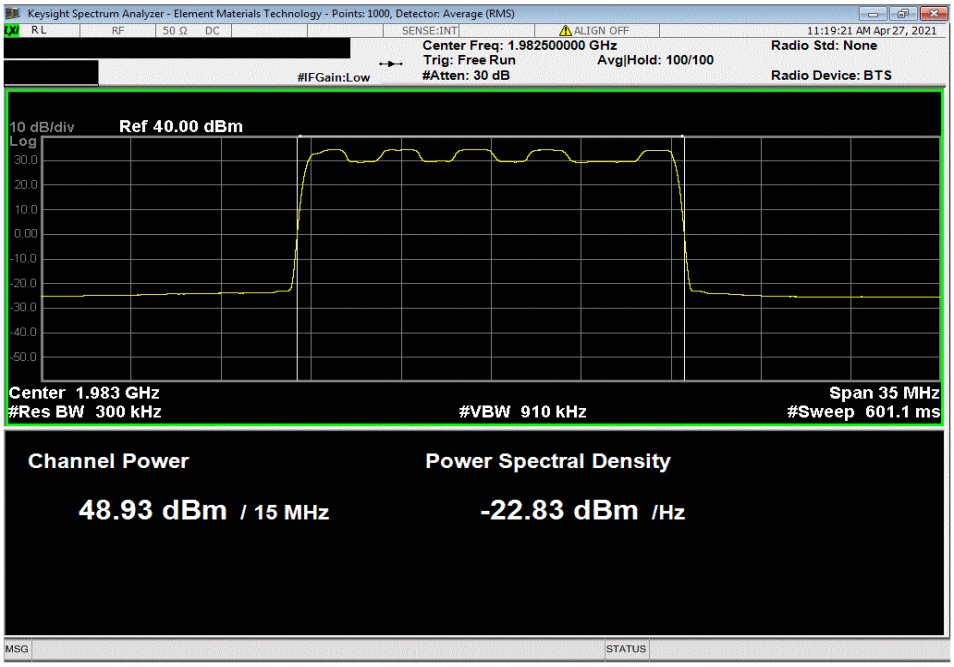
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1937.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.97	0	48.97	51.97	54.97	



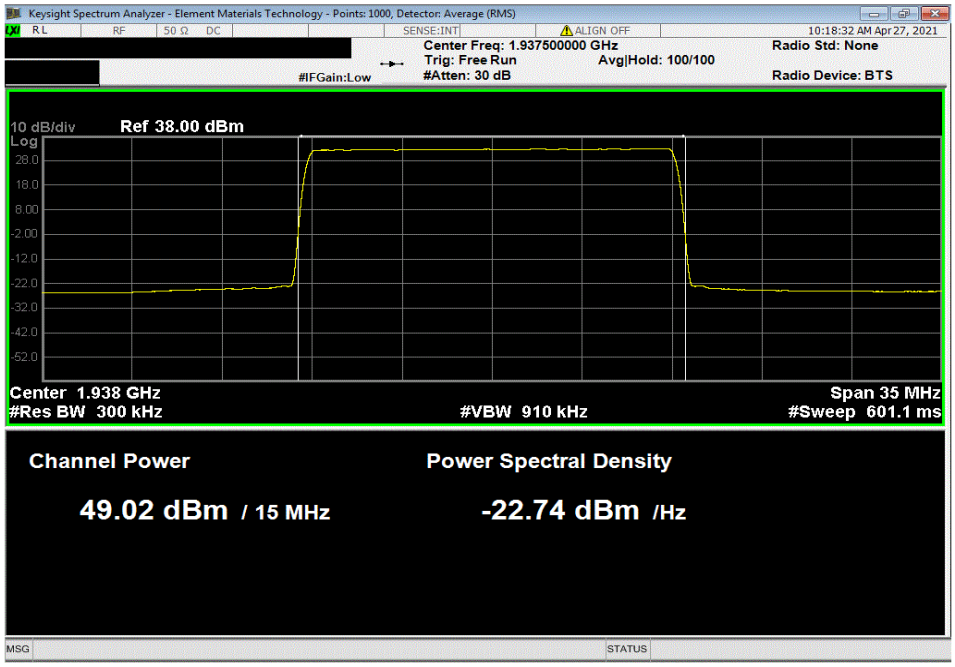
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.112	0	49.11	52.11	55.11	



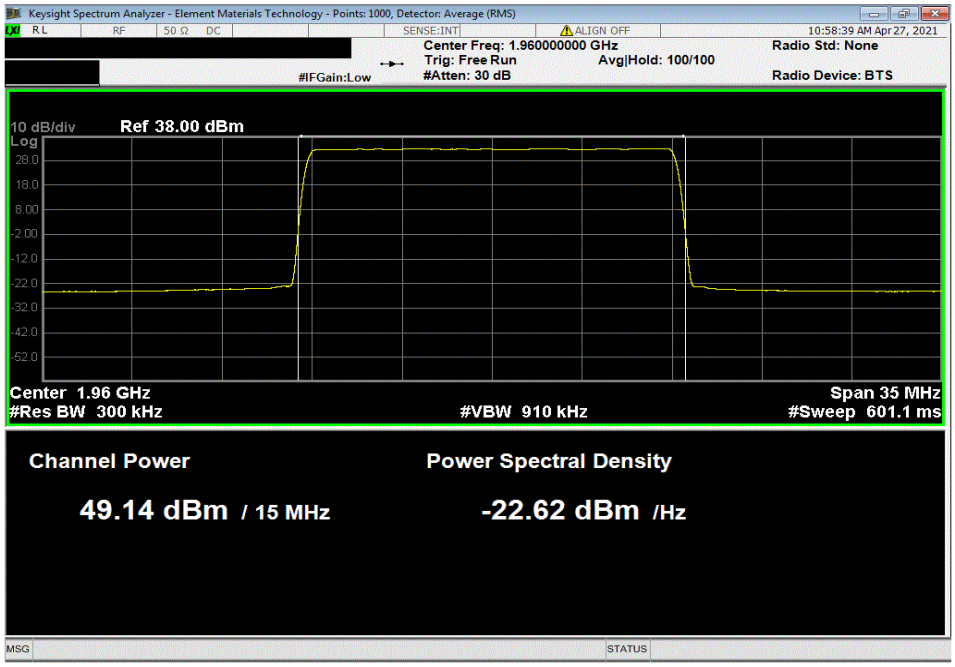
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 16-QAM Modulation, High Channel, 1982.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.932	0	48.93	51.93	54.93	



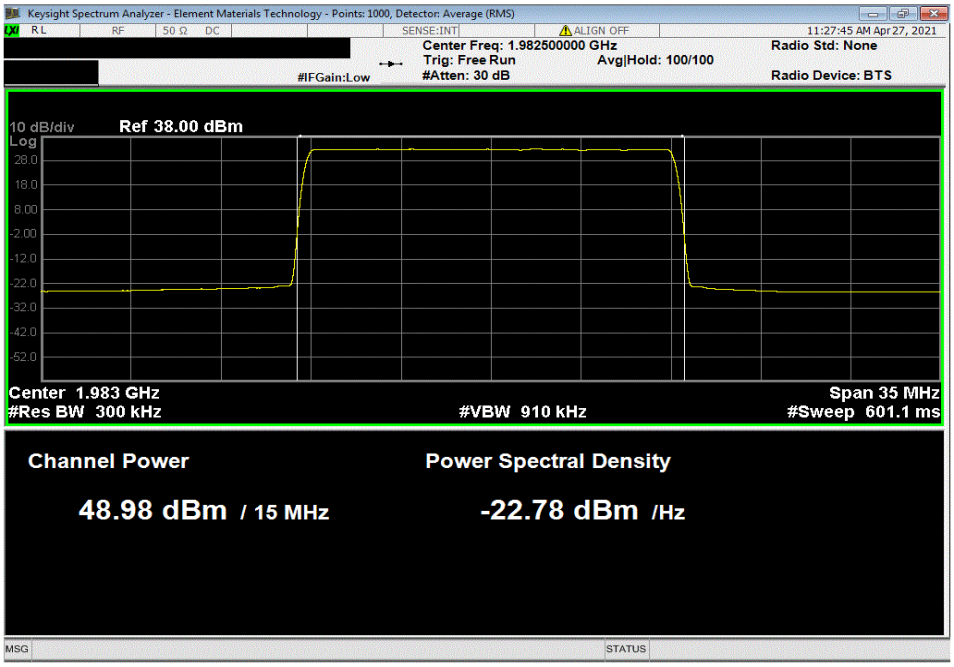
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1937.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.022	0	49.02	52.02	55.02	



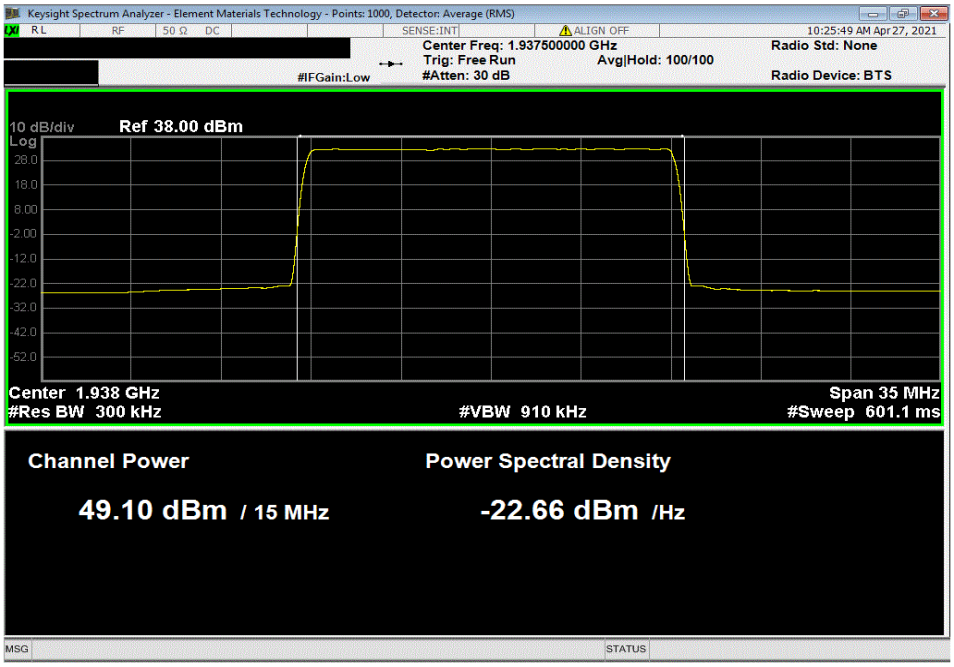
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.137	0	49.14	52.14	55.14	



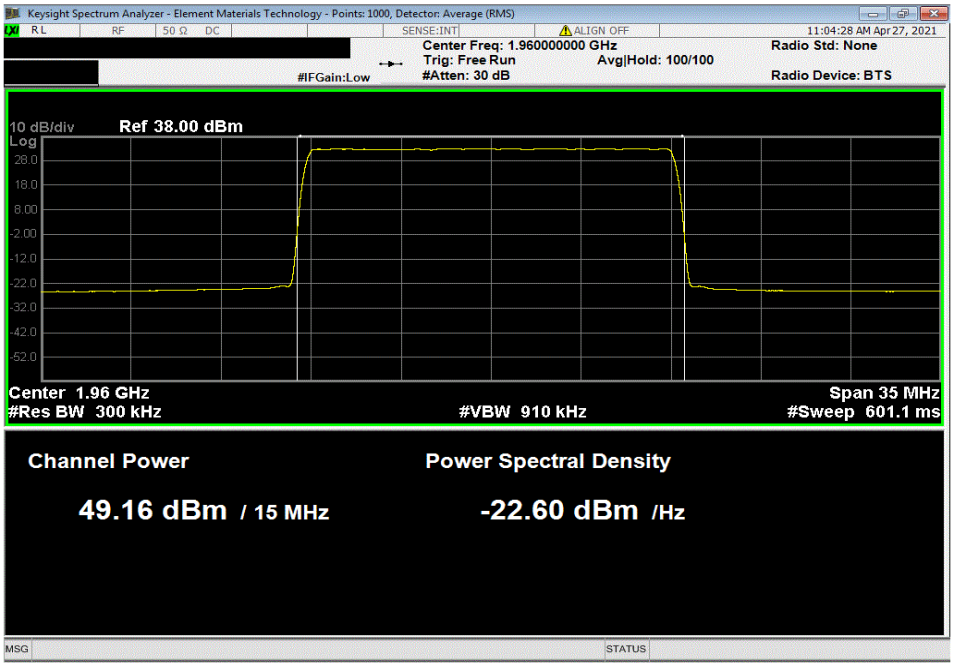
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 64-QAM Modulation, High Channel, 1982.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	48.978	0	48.98	51.98	54.98	



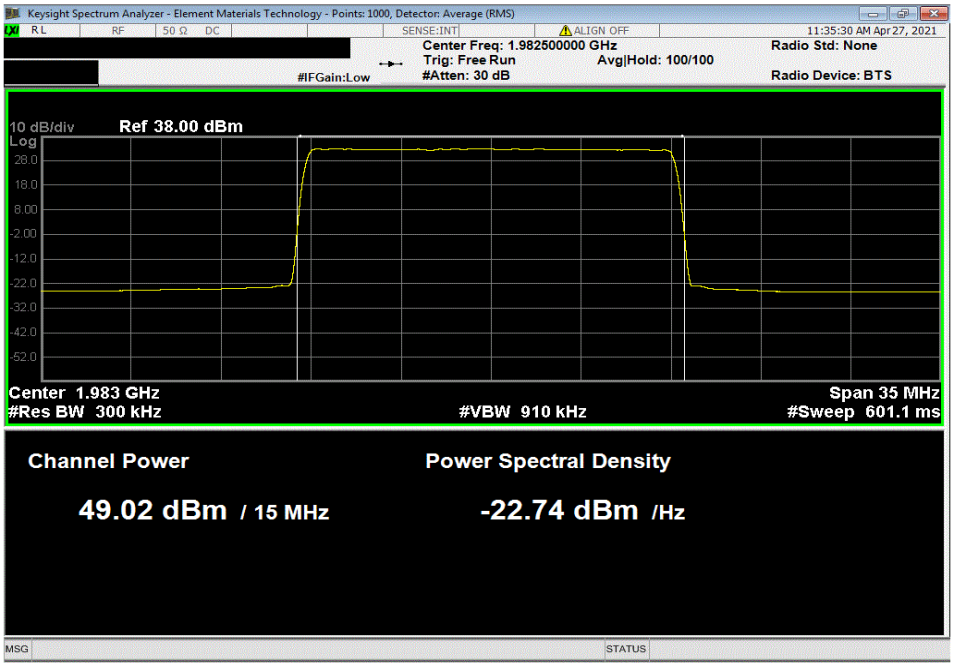
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1937.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.096	0	49.10	52.10	55.10	



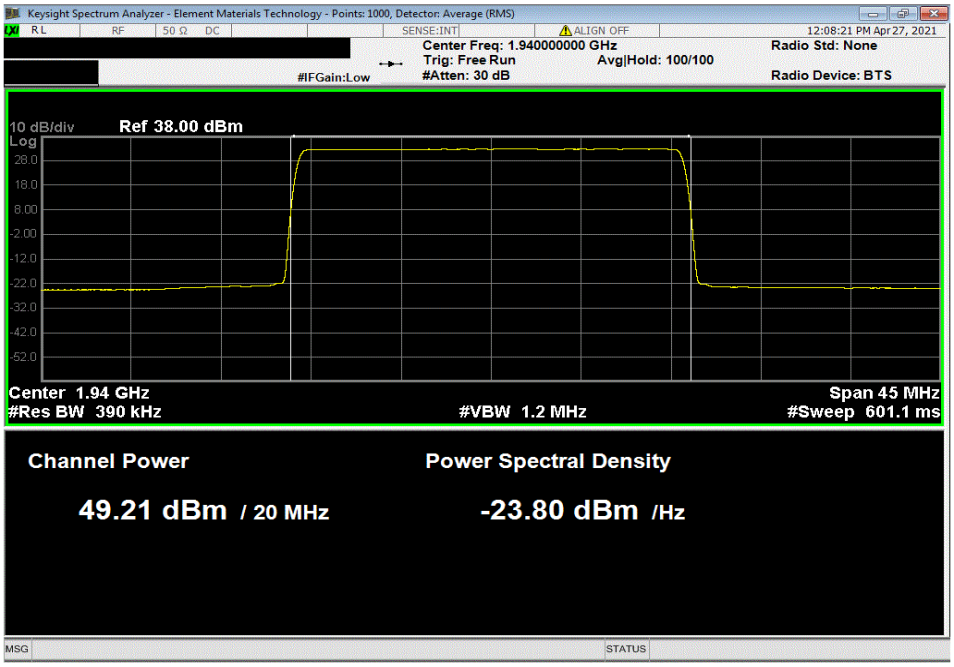
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.156	0	49.16	52.16	55.16	



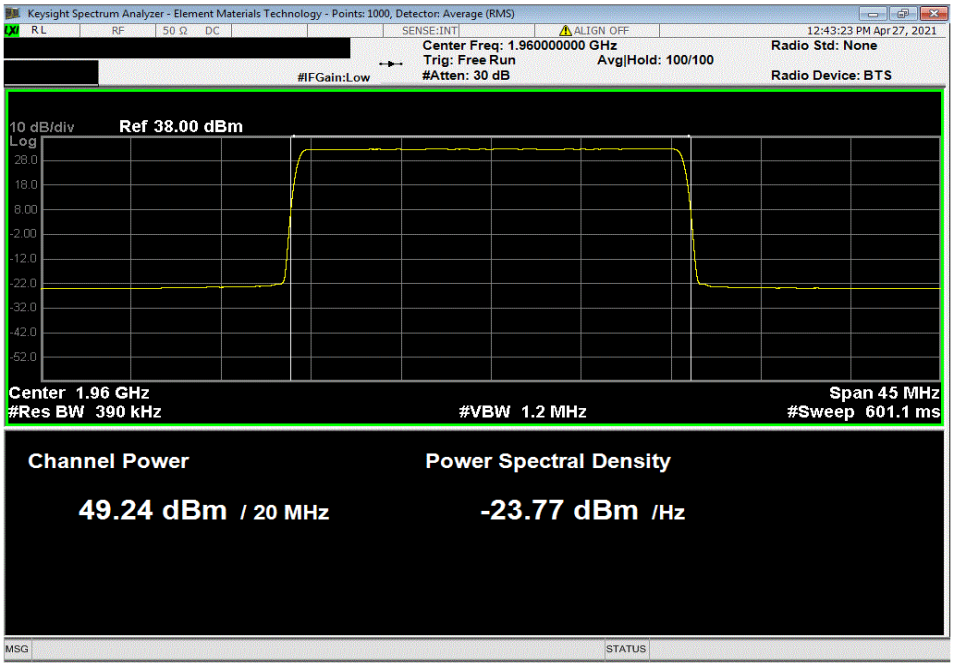
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 256-QAM Modulation, High Channel, 1982.5 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.022	0	49.02	52.02	55.02	



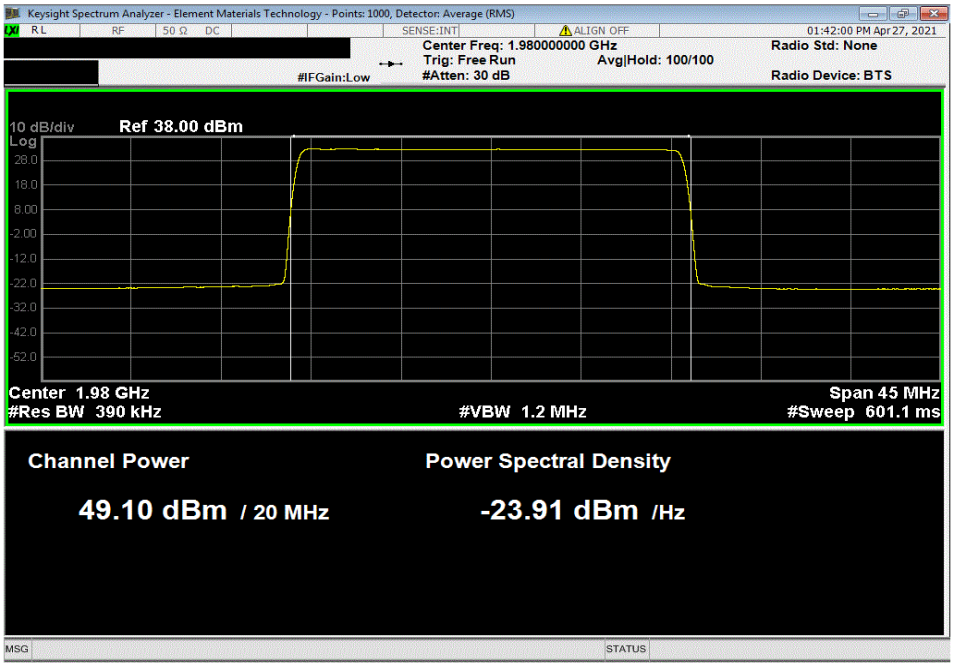
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, QPSK Modulation , Low Channel, 1940 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.211	0	49.21	52.21	55.21	



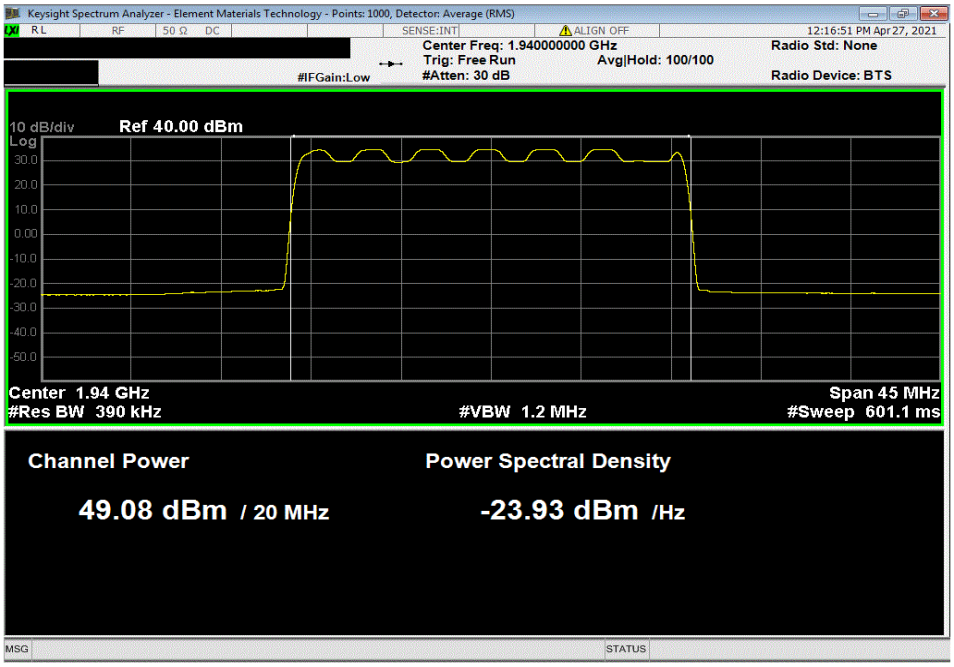
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.24	0	49.24	52.24	55.24	



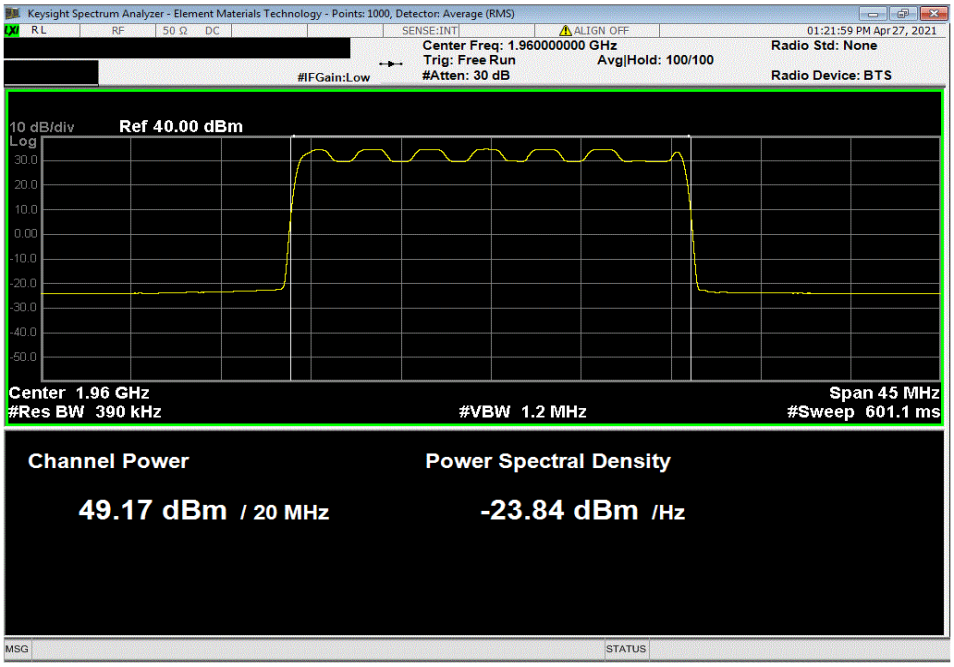
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, QPSK Modulation , High Channel, 1980 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.101	0	49.10	52.10	55.10	



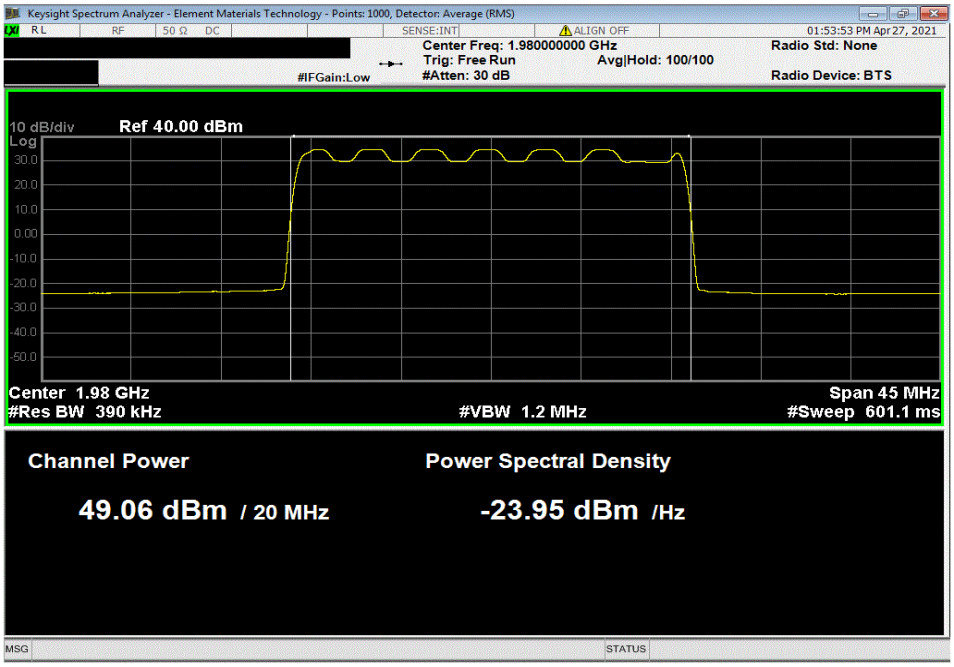
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1940 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.079	0	49.08	52.08	55.08	



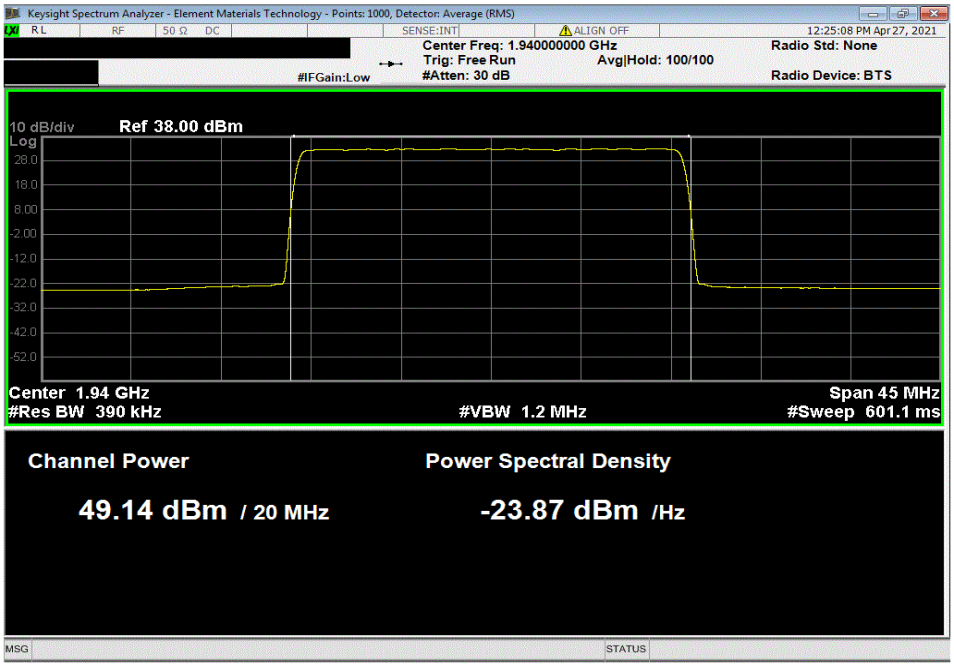
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.166	0	49.17	52.17	55.17	



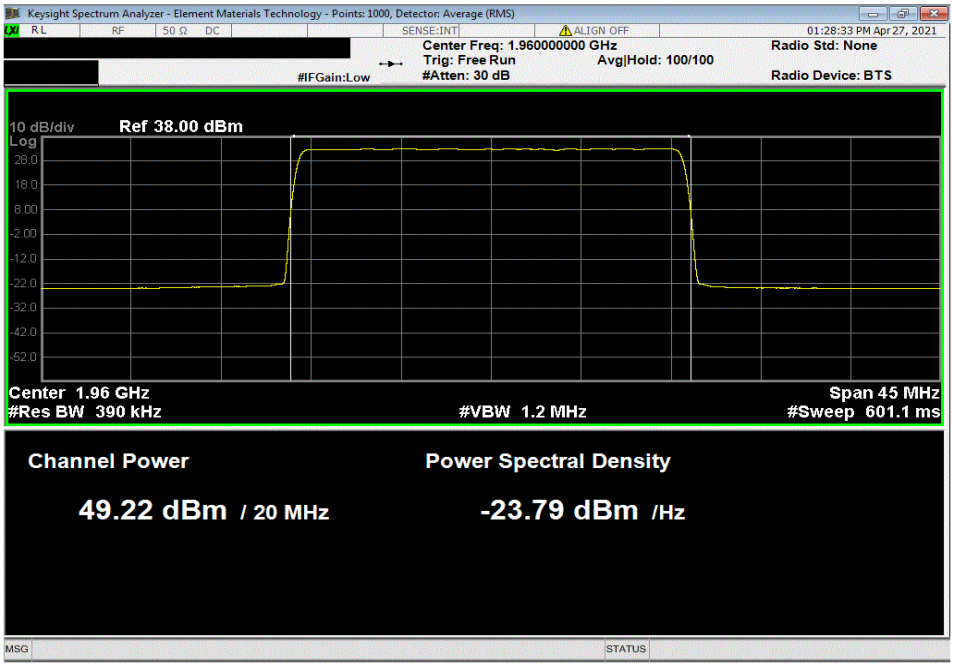
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 16-QAM Modulation, High Channel, 1980 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.06	0	49.06	52.06	55.06	



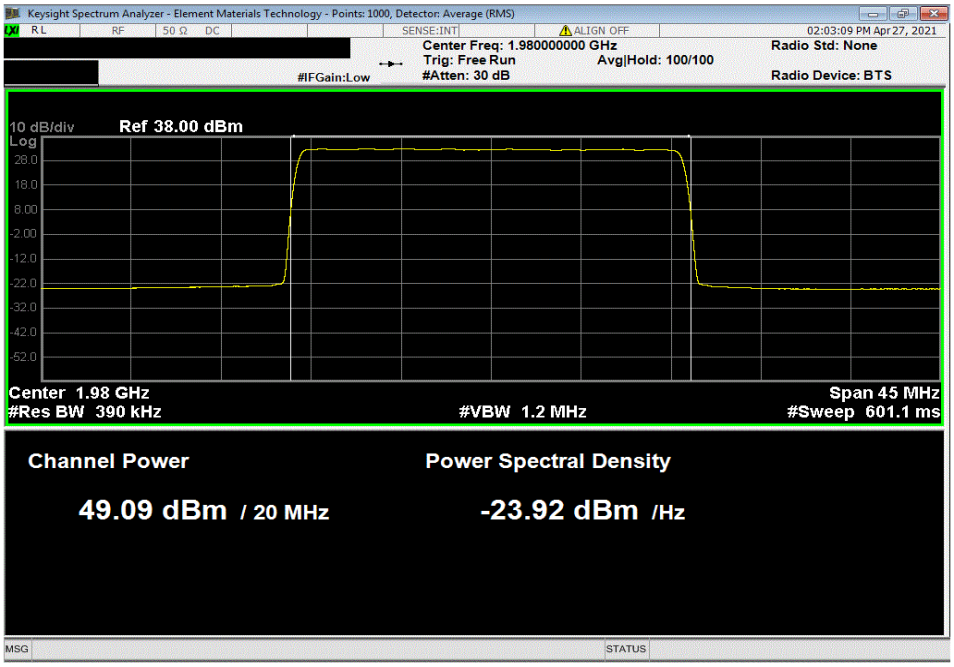
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1940 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.141	0	49.14	52.14	55.14	



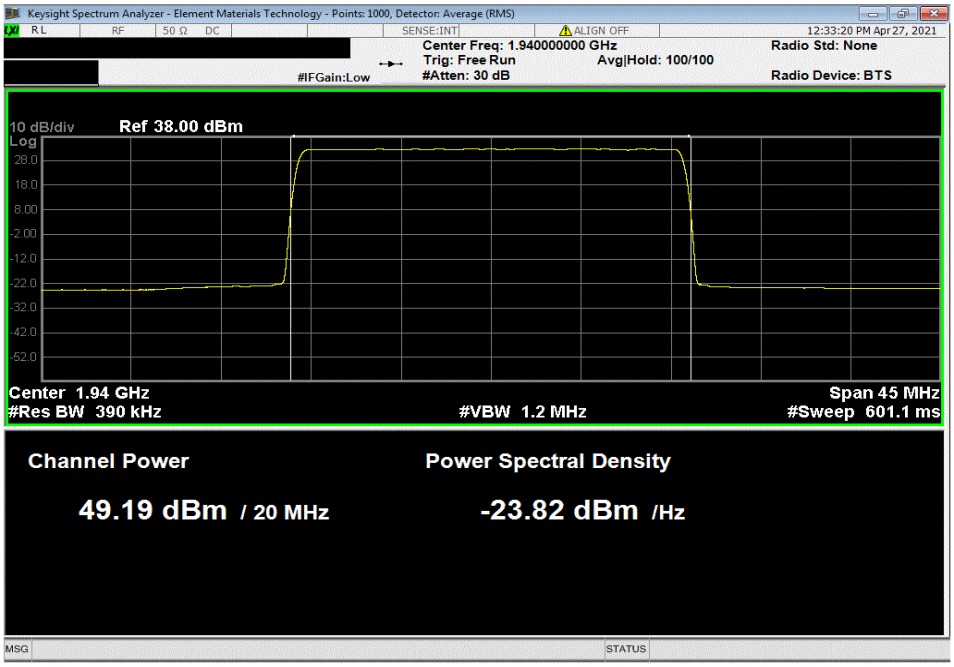
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.218	0	49.22	52.22	55.22	



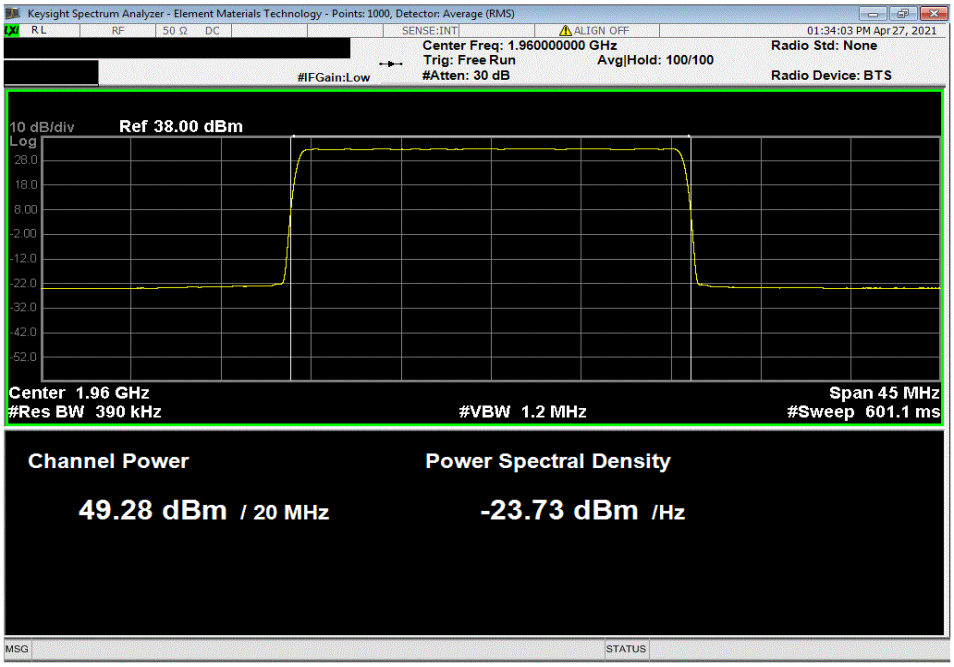
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 64-QAM Modulation, High Channel, 1980 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.087	0	49.09	52.09	55.09	



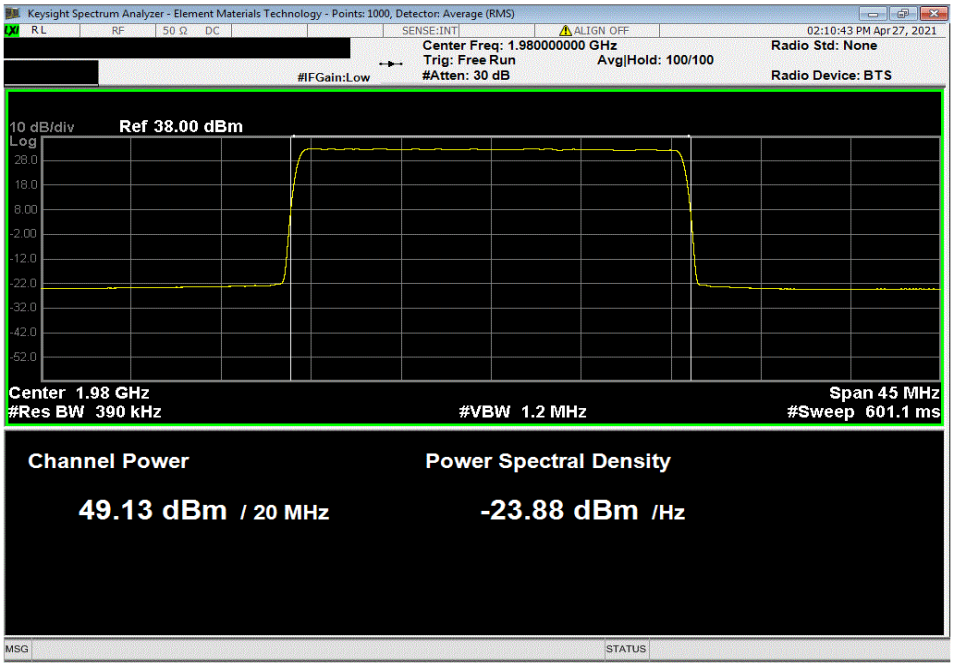
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1940 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.193	0	49.19	52.19	55.19	



Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.278	0	49.28	52.28	55.28	



Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 256-QAM Modulation, High Channel, 1980 MHz						
	Initial Value dBm/Carrier BW	Duty Cycle	Single Port dBm/Carrier BW	Two Port (2x2 MIMO) dBm/Carrier BW	Four Port (4x4 MIMO) dBm/Carrier BW	
	49.129	0	49.13	52.13	55.13	



PEAK TO AVERAGE (PAPR) CCDF

XMit 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2021-01-06	2022-01-06

TEST DESCRIPTION

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

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed the rule part defined limit.

The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.
The PAPR was measured using the CCDF function of the spectrum analyzer.

Per FCC part 24.232(d) and RSS 133 6.4, the PAPR limit shall not exceed 13 dB for more than the ANSI described 0.1% of the time.

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (FXFC) as the original certification test. The FXFC antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the original certification testing) and antenna port 3 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraph 5.7.2i.

PEAK TO AVERAGE (PAPR) CCDF

element

TbtTx 2019.08.30.0 XMit 2020.12.30.0

EUT:	FXFC (FCC/ISED C2PC)			**Work Order:**	NOKI0029
Serial Number:	1M152245671			**Date:**	27-Apr-21
Customer:	Nokia Solutions and Networks			**Temperature:**	23.9 °C
Attendees:	David Le, John Rattanavong			**Humidity:**	47% RH
Project:	None			**Barometric Pres.:**	1014 mbar
Tested by:	Brandon Hobbs	**Power:**	54 VDC	**Job Site:**	TX05

TEST SPECIFICATIONS	Test Method
FCC 24E:2021	ANSI C63.26:2015
RSS-133 Issue 6:2013+A1:2018	RSS-133 Issue 6:2013+A1:2018

COMMENTS

All measurement path losses were accounted for in the reference level offest including any attenuators, filters and DC blocks. Band n2 carriers were enabled at maximmum power (80watts/carrier)

DEVIATIONS FROM TEST STANDARD

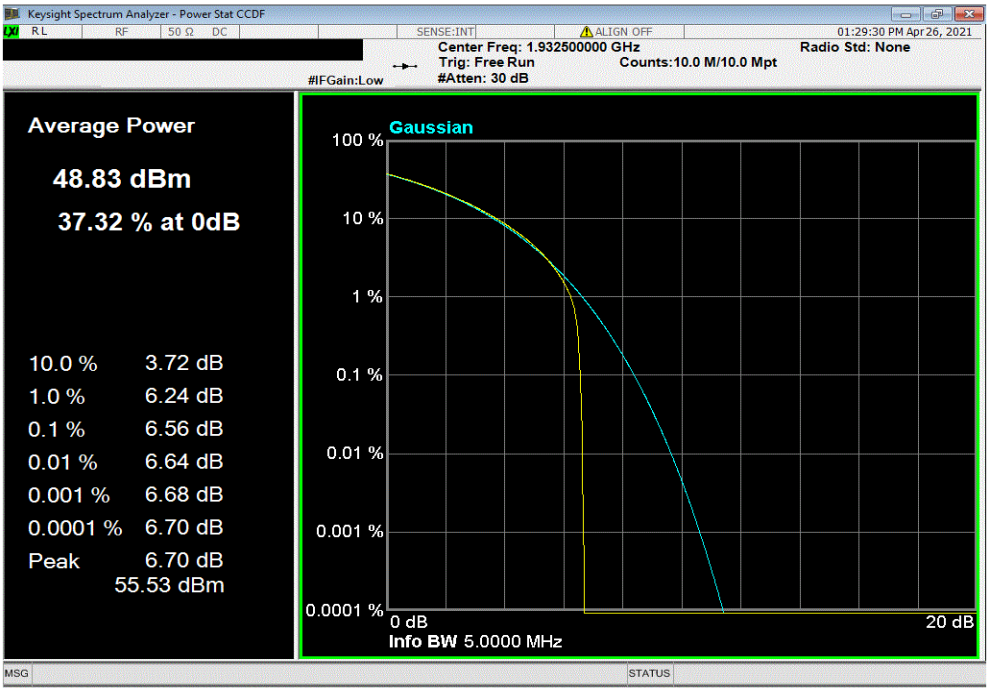
None

Configuration #	2	Signature

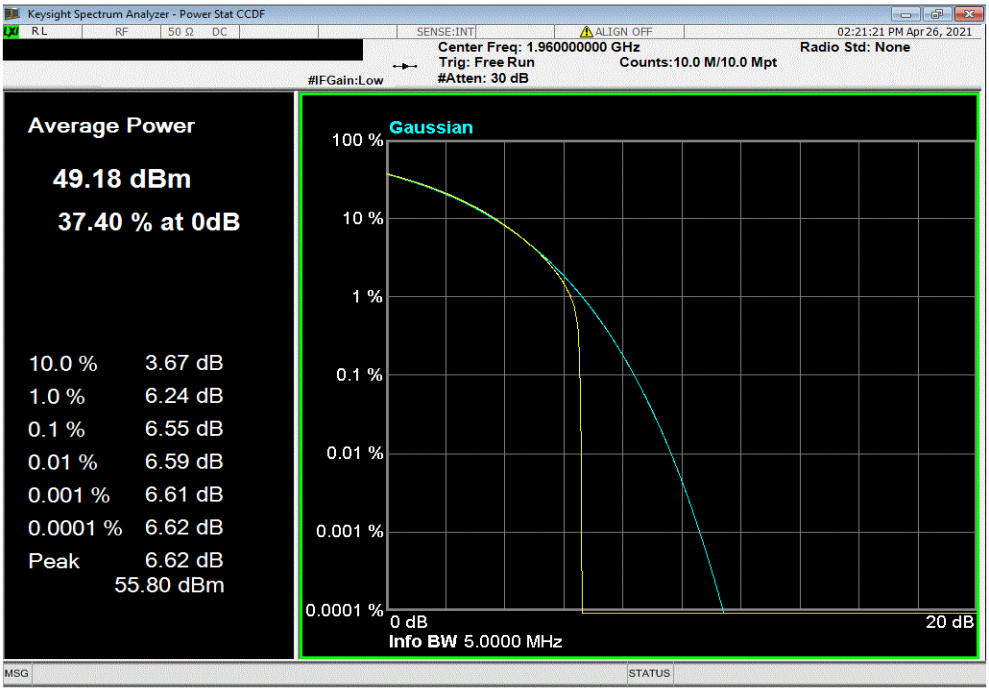
	PAPR Value (dB)	PAPR Limit (dB)	Results
Band n2, 1930 MHz - 1990 MHz, 5G NR			
Port 3			
5 MHz Bandwdith			
QPSK Modulation			
Low Channel, 1932.5 MHz	6.56	13	Pass
Mid Channel, 1960 MHz	6.55	13	Pass
High Channel, 1987.5 MHz	6.58	13	Pass
16-QAM Modulation			
Low Channel, 1932.5 MHz	6.74	13	Pass
Mid Channel, 1960 MHz	6.74	13	Pass
High Channel, 1987.5 MHz	6.78	13	Pass
64-QAM Modulation			
Low Channel, 1932.5 MHz	6.56	13	Pass
Mid Channel, 1960 MHz	6.55	13	Pass
High Channel, 1987.5 MHz	6.56	13	Pass
256-QAM Modulation			
Low Channel, 1932.5 MHz	6.55	13	Pass
Mid Channel, 1960 MHz	6.51	13	Pass
High Channel, 1987.5 MHz	6.54	13	Pass
10 MHz Bandwdith			
QPSK Modulation			
Low Channel, 1935 MHz	6.71	13	Pass
Mid Channel, 1960 MHz	6.57	13	Pass
High Channel, 1985 MHz	6.63	13	Pass
16-QAM Modulation			
Low Channel, 1935 MHz	6.80	13	Pass
Mid Channel, 1960 MHz	6.71	13	Pass
High Channel, 1985 MHz	6.74	13	Pass
64-QAM Modulation			
Low Channel, 1935 MHz	6.67	13	Pass
Mid Channel, 1960 MHz	6.58	13	Pass
High Channel, 1985 MHz	6.69	13	Pass
256-QAM Modulation			
Low Channel, 1935 MHz	6.67	13	Pass
Mid Channel, 1960 MHz	6.56	13	Pass
High Channel, 1985 MHz	6.67	13	Pass
15 MHz Bandwdith			
QPSK Modulation			
Low Channel, 1937.5 MHz	6.76	13	Pass
Mid Channel, 1960 MHz	6.55	13	Pass
High Channel, 1982.5 MHz	6.71	13	Pass
16-QAM Modulation			
Low Channel, 1937.5 MHz	6.81	13	Pass
Mid Channel, 1960 MHz	6.66	13	Pass
High Channel, 1982.5 MHz	6.80	13	Pass
64-QAM Modulation			
Low Channel, 1937.5 MHz	6.77	13	Pass
Mid Channel, 1960 MHz	6.57	13	Pass
High Channel, 1982.5 MHz	6.73	13	Pass
256-QAM Modulation			
Low Channel, 1937.5 MHz	6.77	13	Pass
Mid Channel, 1960 MHz	6.54	13	Pass
High Channel, 1982.5 MHz	6.72	13	Pass
20 MHz Bandwdith			
QPSK Modulation			
Low Channel, 1940 MHz	6.82	13	Pass
Mid Channel, 1960 MHz	6.49	13	Pass
High Channel, 1980 MHz	6.73	13	Pass
16-QAM Modulation			
Low Channel, 1940 MHz	6.86	13	Pass
Mid Channel, 1960 MHz	6.57	13	Pass
High Channel, 1980 MHz	6.79	13	Pass
64-QAM Modulation			
Low Channel, 1940 MHz	6.79	13	Pass
Mid Channel, 1960 MHz	6.50	13	Pass
High Channel, 1980 MHz	6.73	13	Pass
256-QAM Modulation			
Low Channel, 1940 MHz	6.86	13	Pass
Mid Channel, 1960 MHz	6.50	13	Pass
High Channel, 1980 MHz	6.75	13	Pass

PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, QPSK Modulation , Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.56	13	Pass

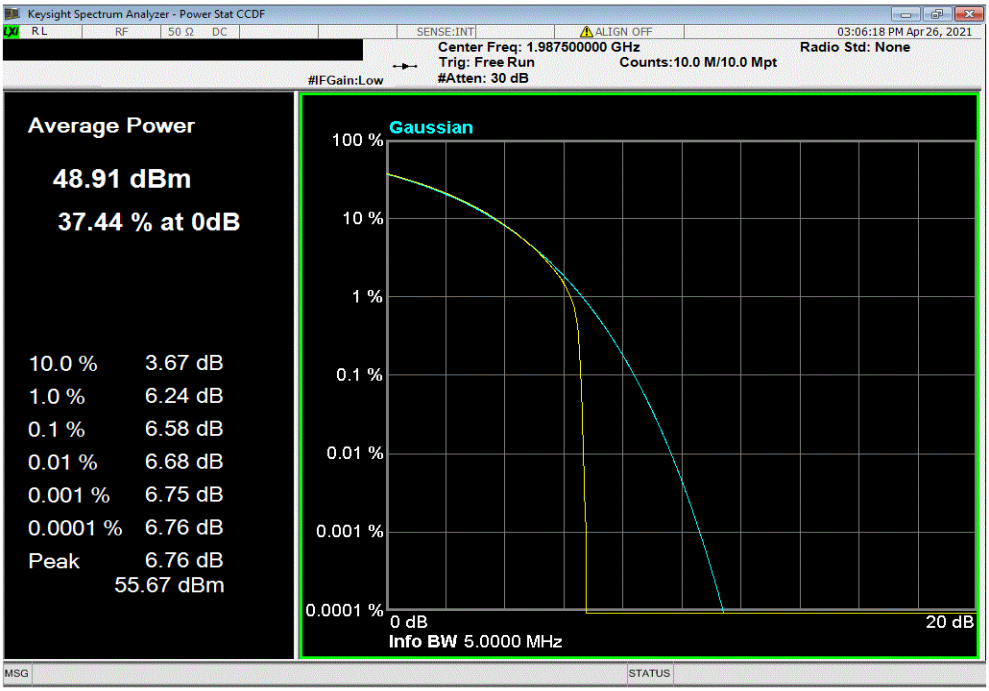


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.55	13	Pass

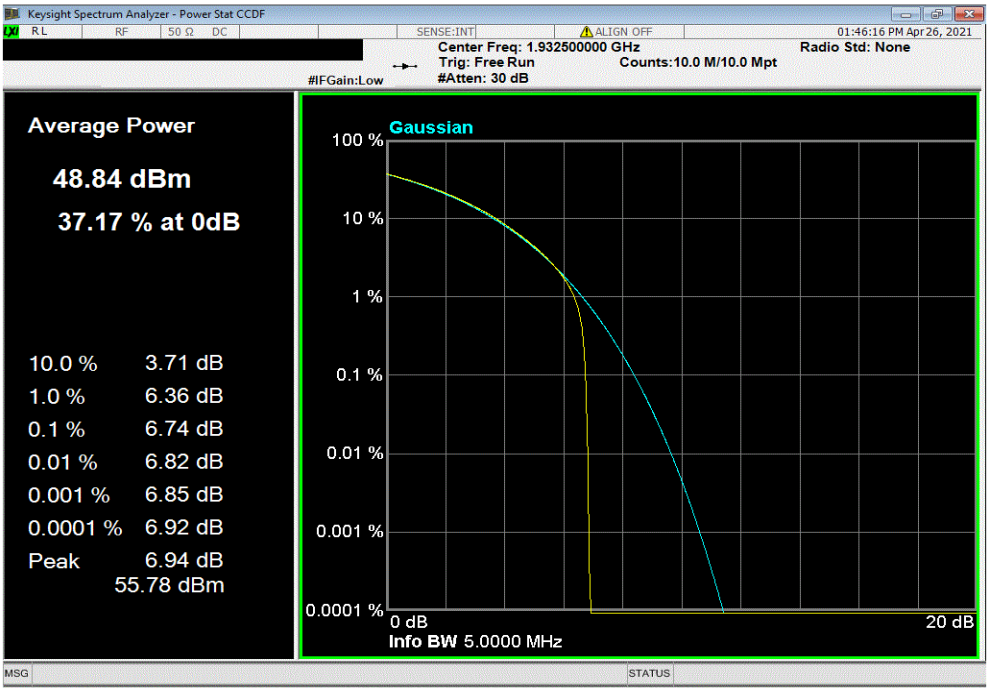


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, QPSK Modulation , High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.58	13	Pass

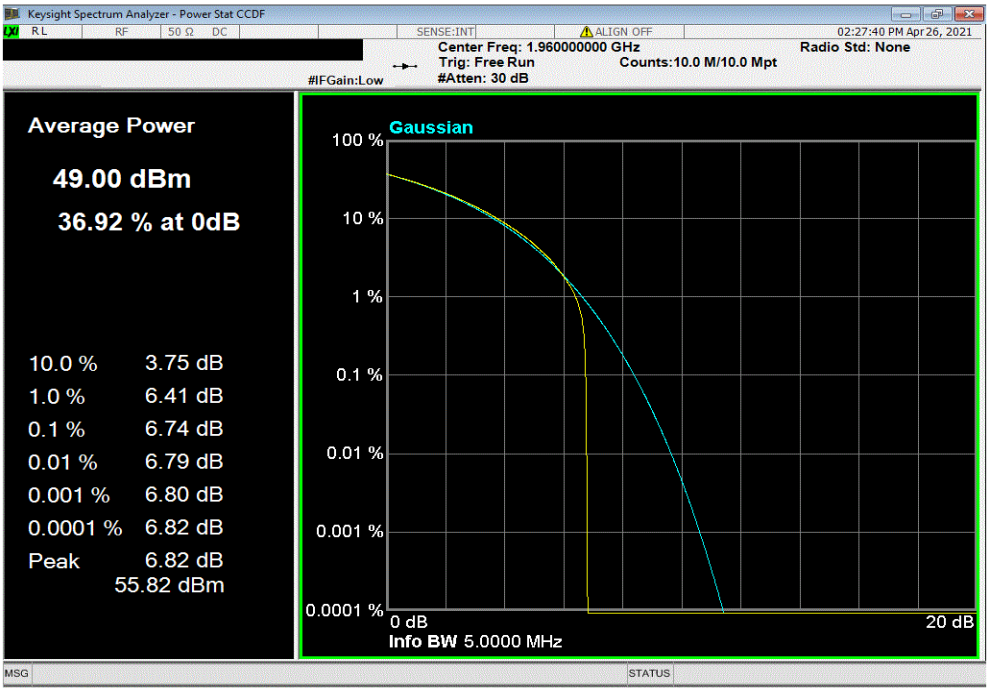


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.74	13	Pass

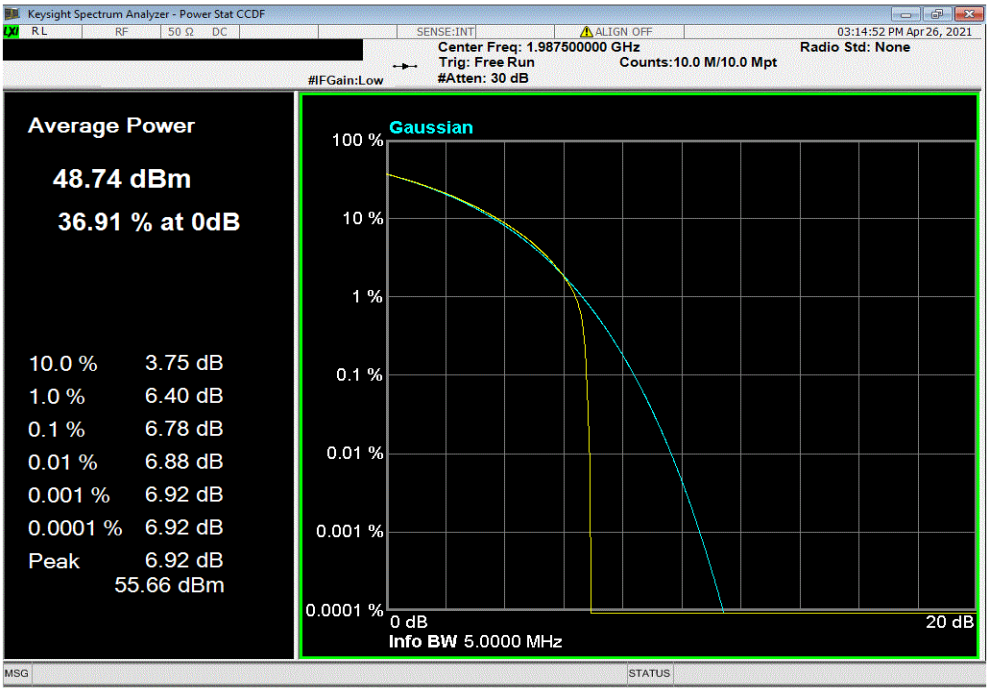


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.74	13	Pass

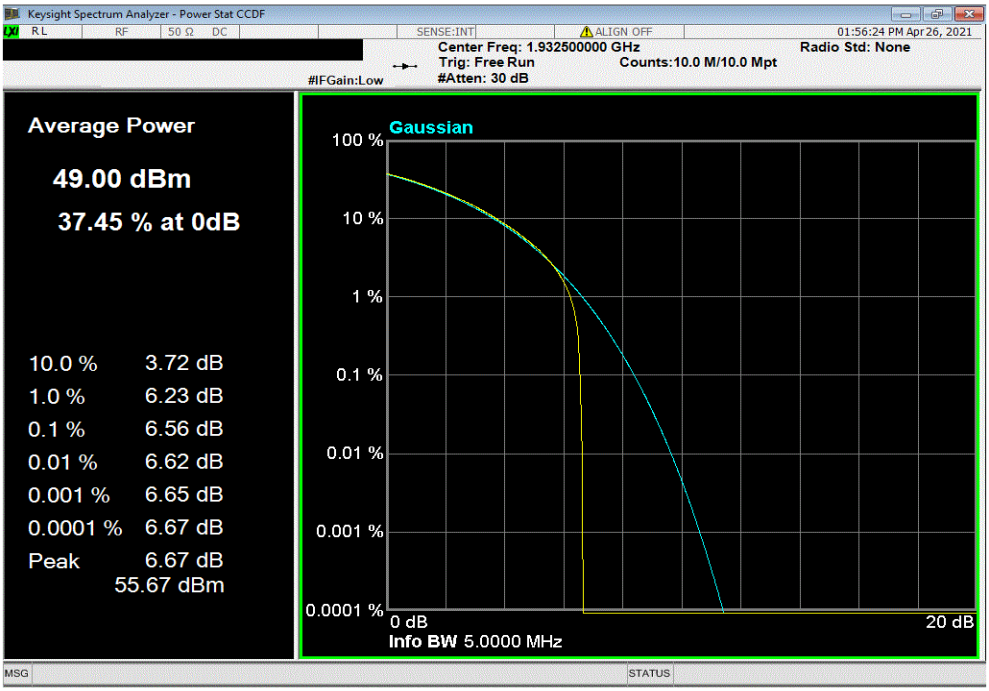


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 16-QAM Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.78	13	Pass

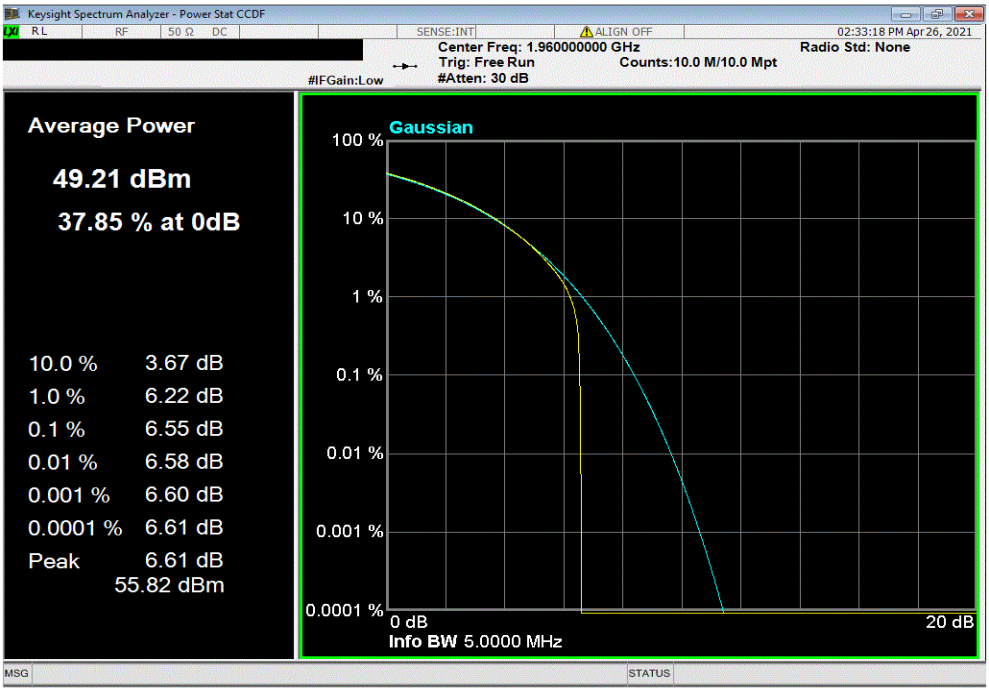


PEAK TO AVERAGE (PAPR) CCDF

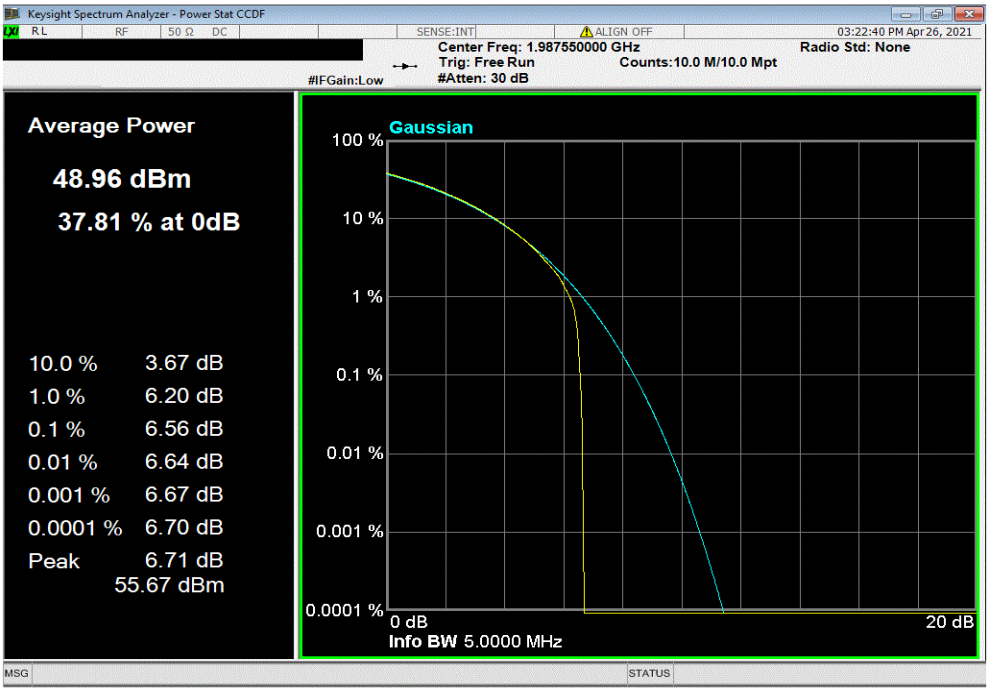
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.56	13	Pass



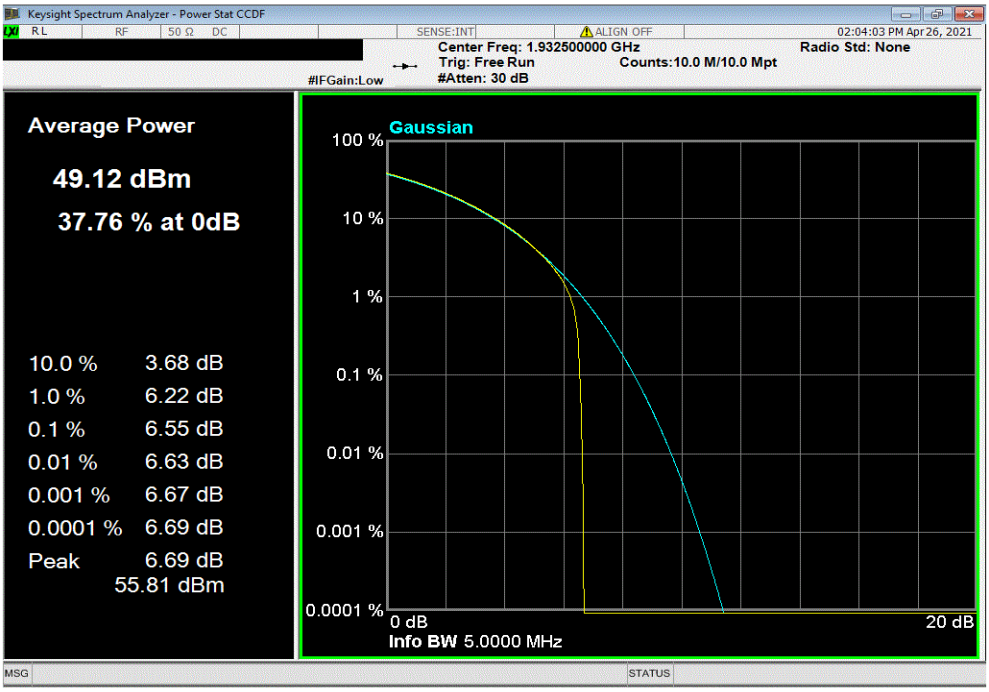
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.55	13	Pass



Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 64-QAM Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.56	13	Pass

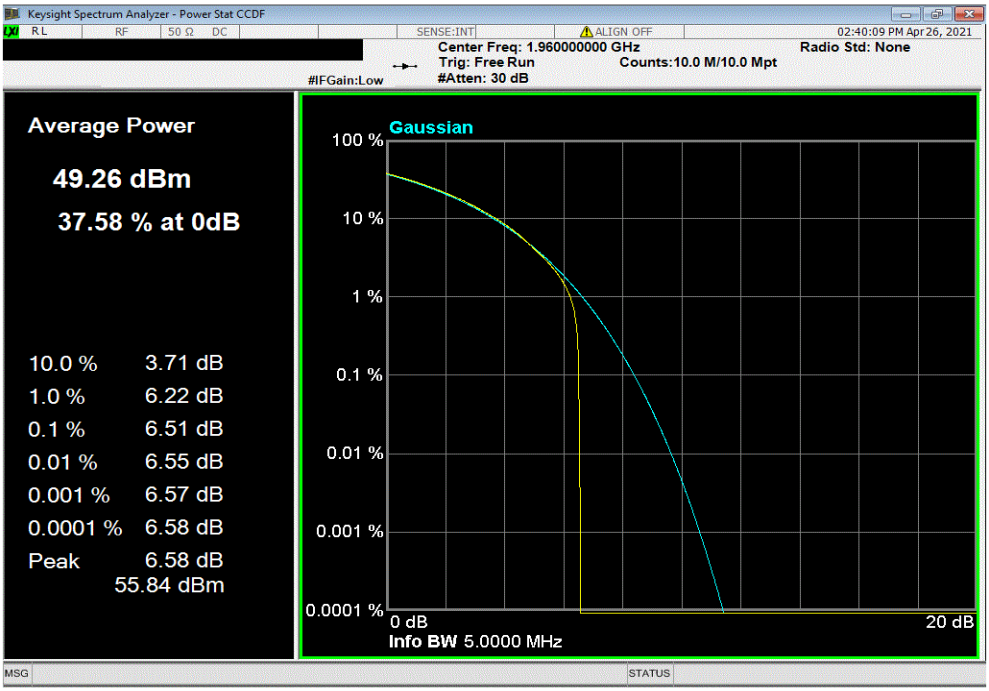


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.55	13	Pass

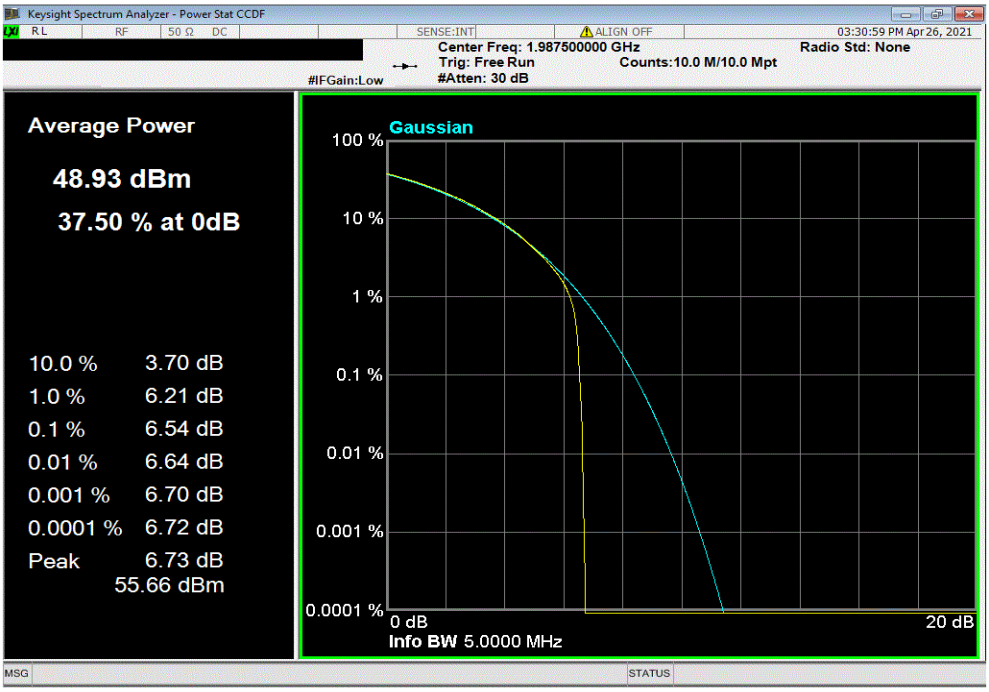


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.51	13	Pass

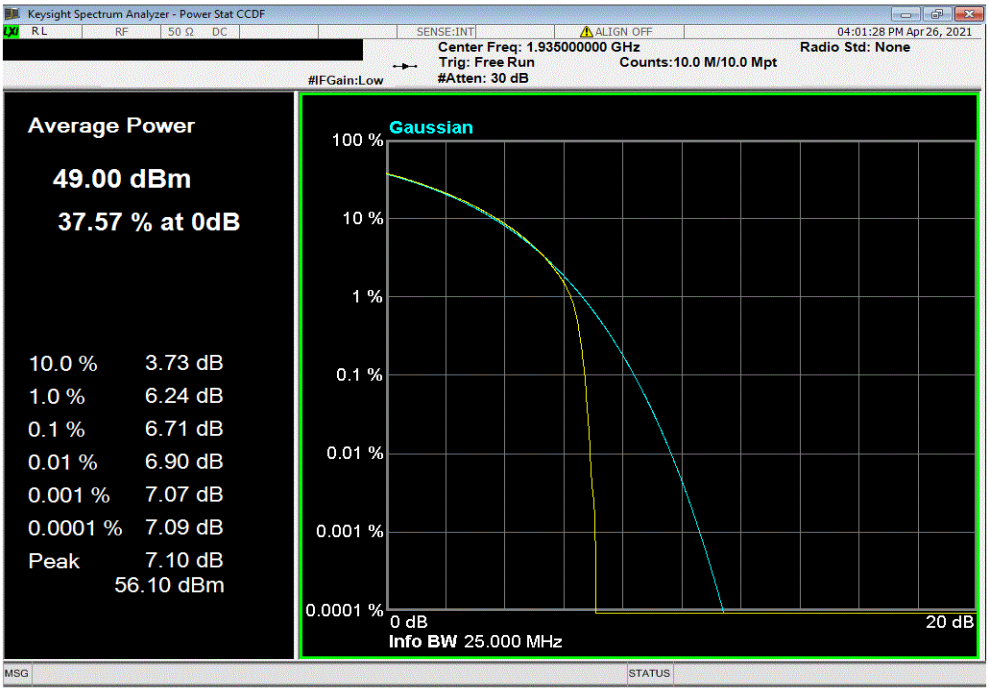


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 5 MHz Bandwdith, 256-QAM Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.54	13	Pass

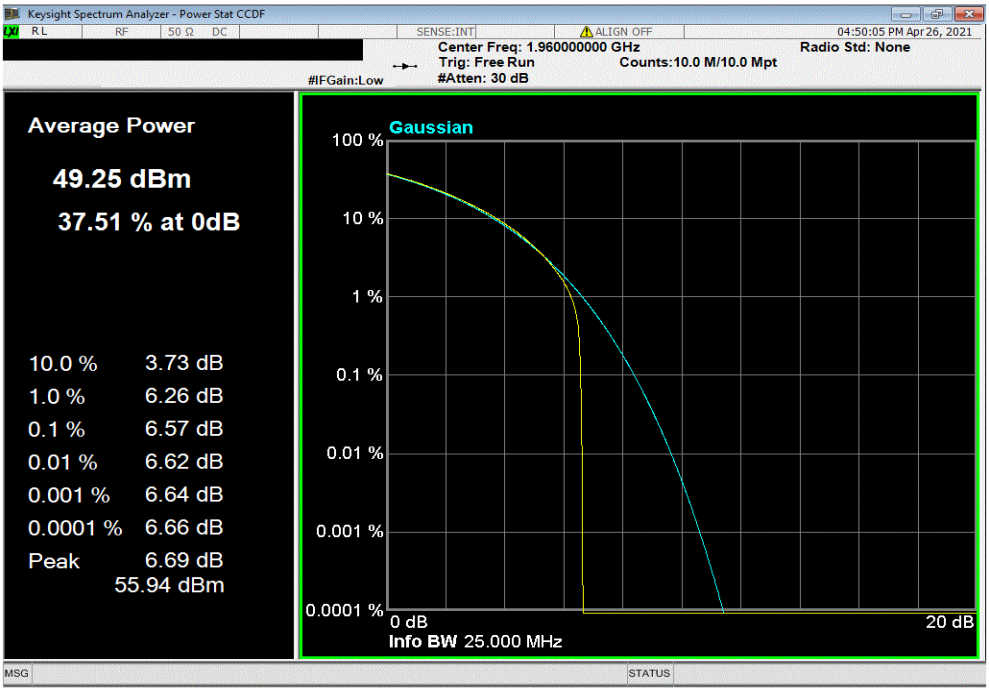


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, QPSK Modulation , Low Channel, 1935 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.71	13	Pass

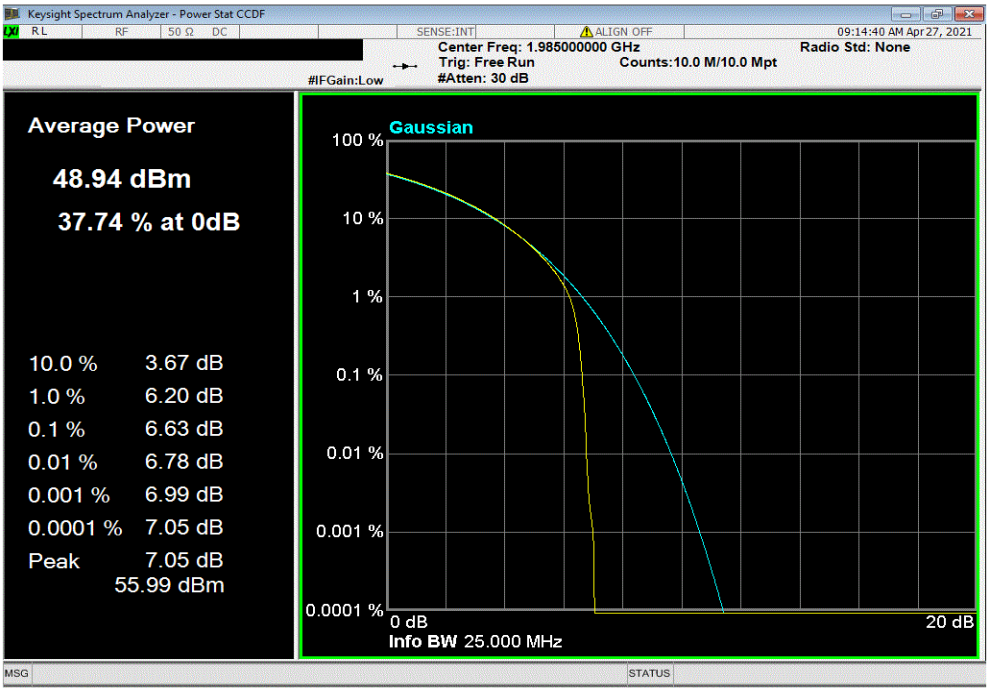


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.57	13	Pass

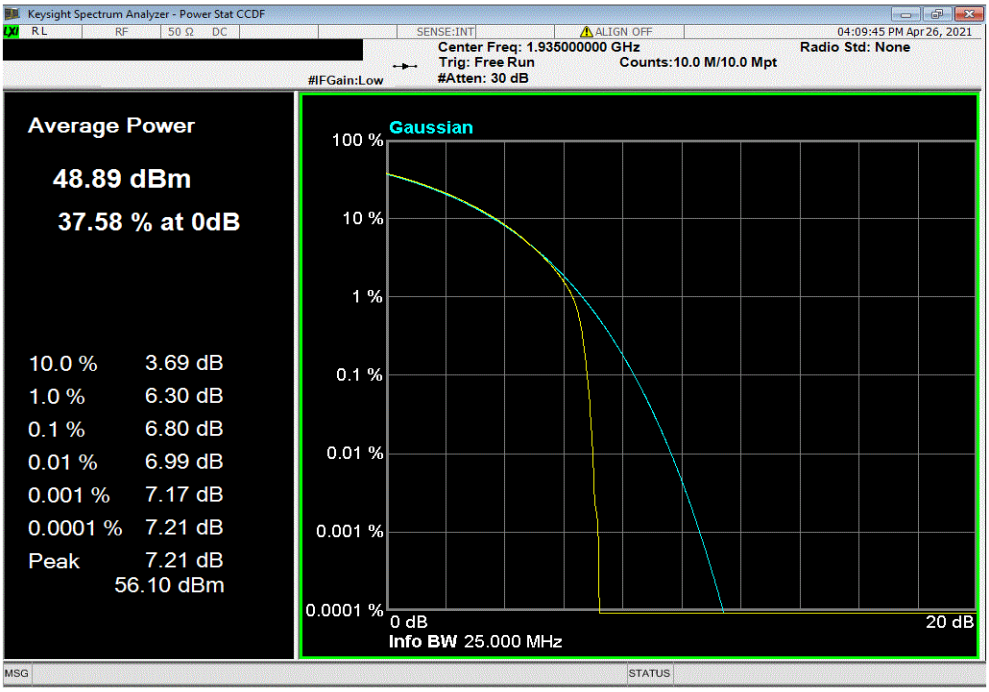


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, QPSK Modulation , High Channel, 1985 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.63	13	Pass

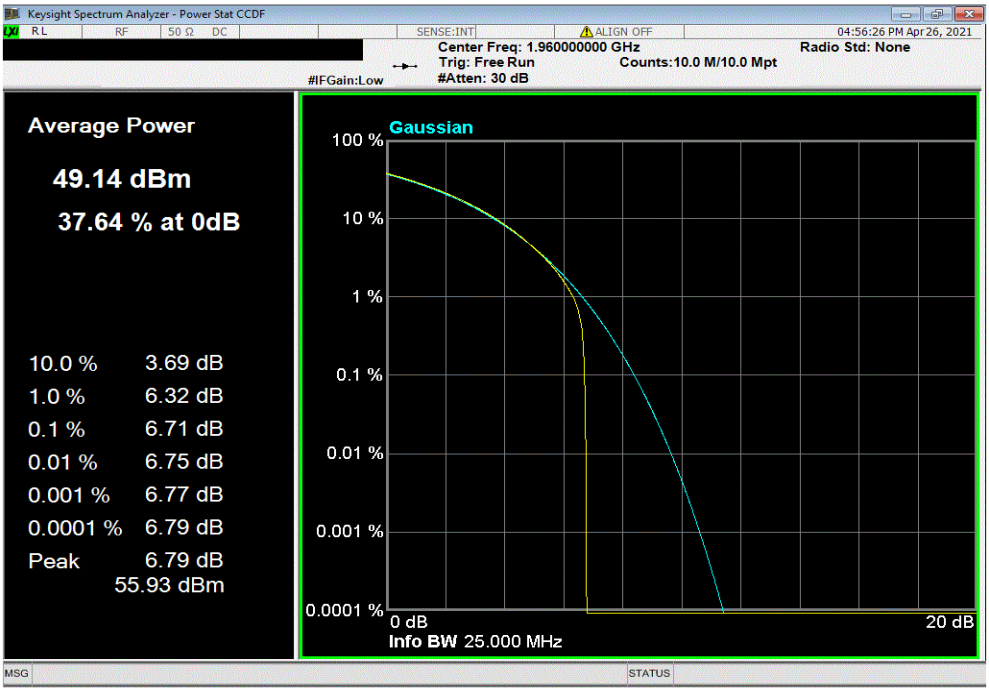


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1935 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.8	13	Pass

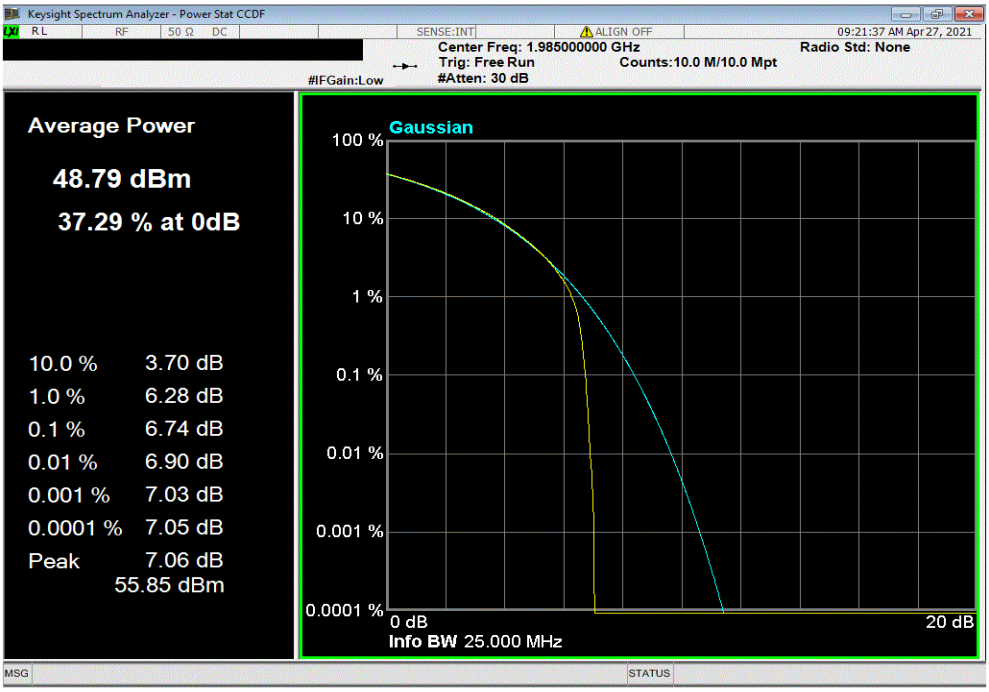


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.71	13	Pass

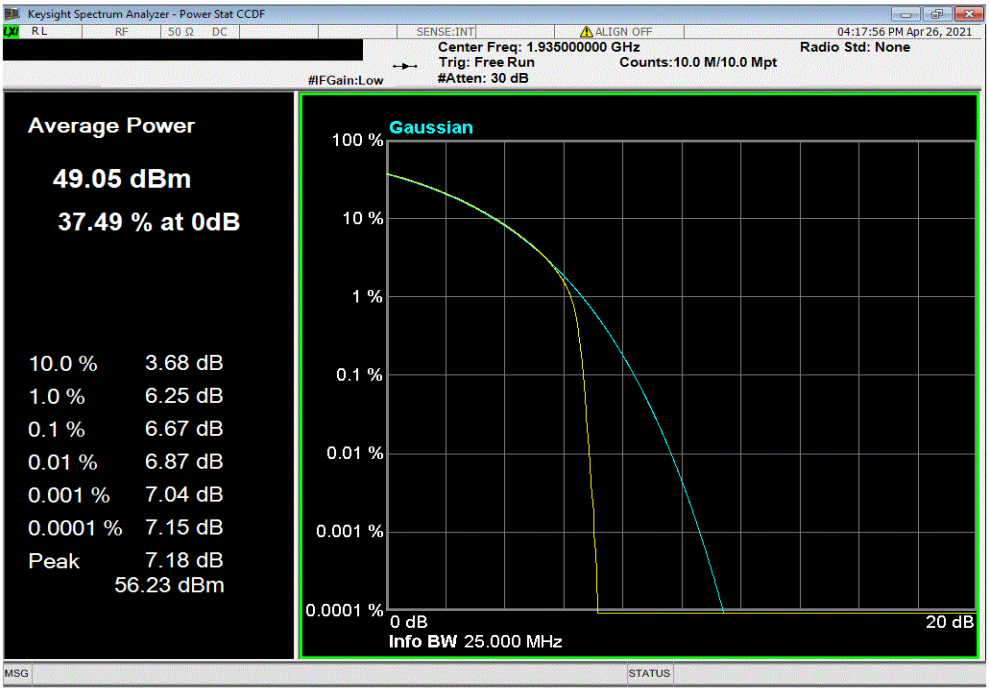


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 16-QAM Modulation, High Channel, 1985 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.74	13	Pass

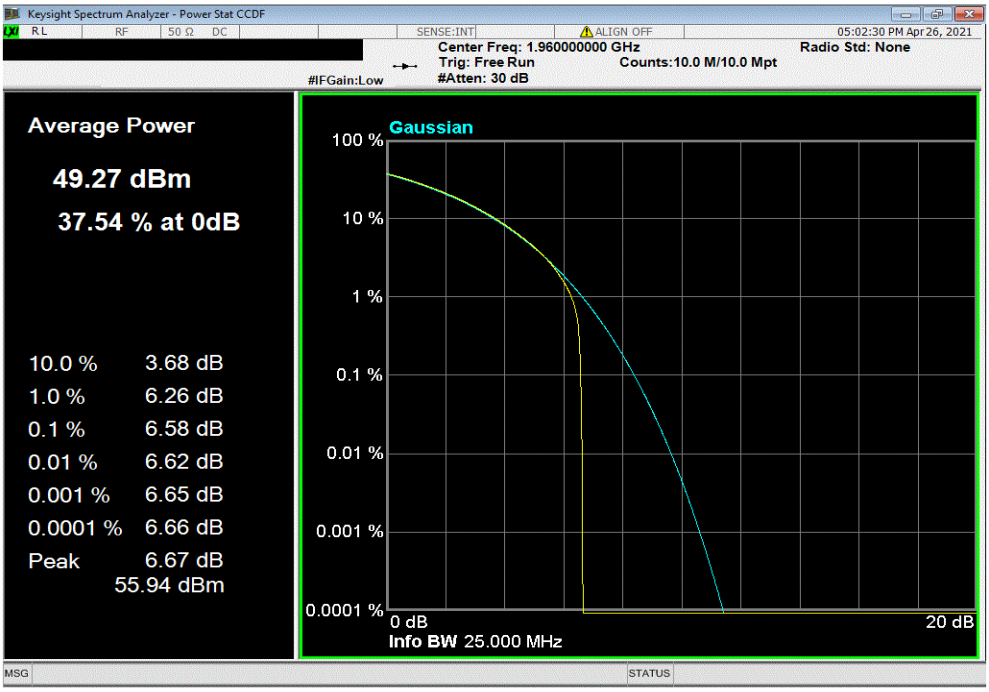


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1935 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.67	13	Pass

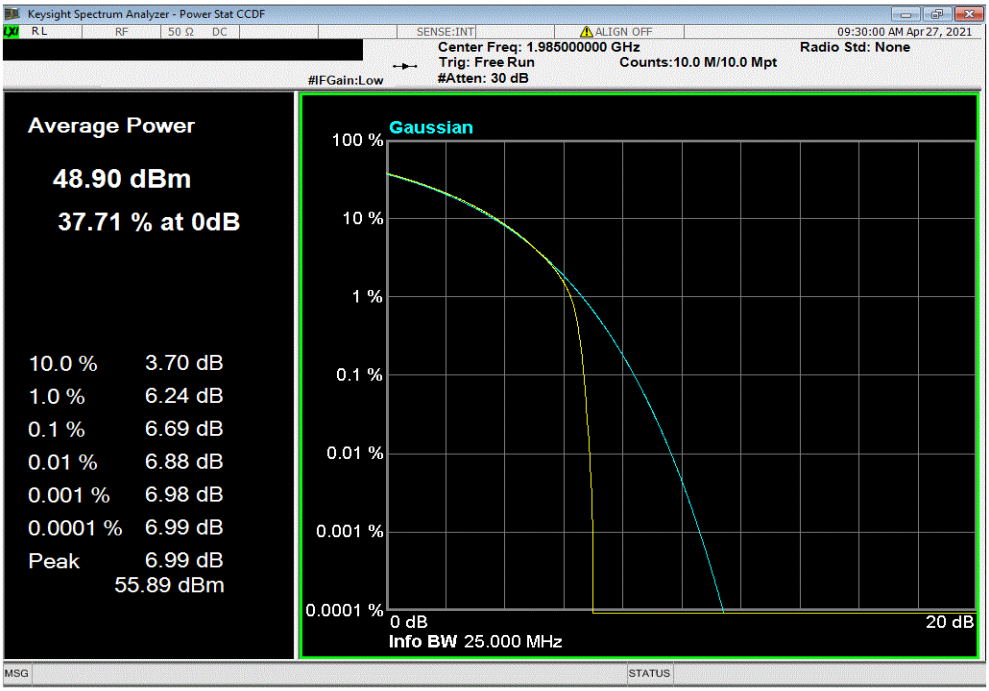


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.58	13	Pass

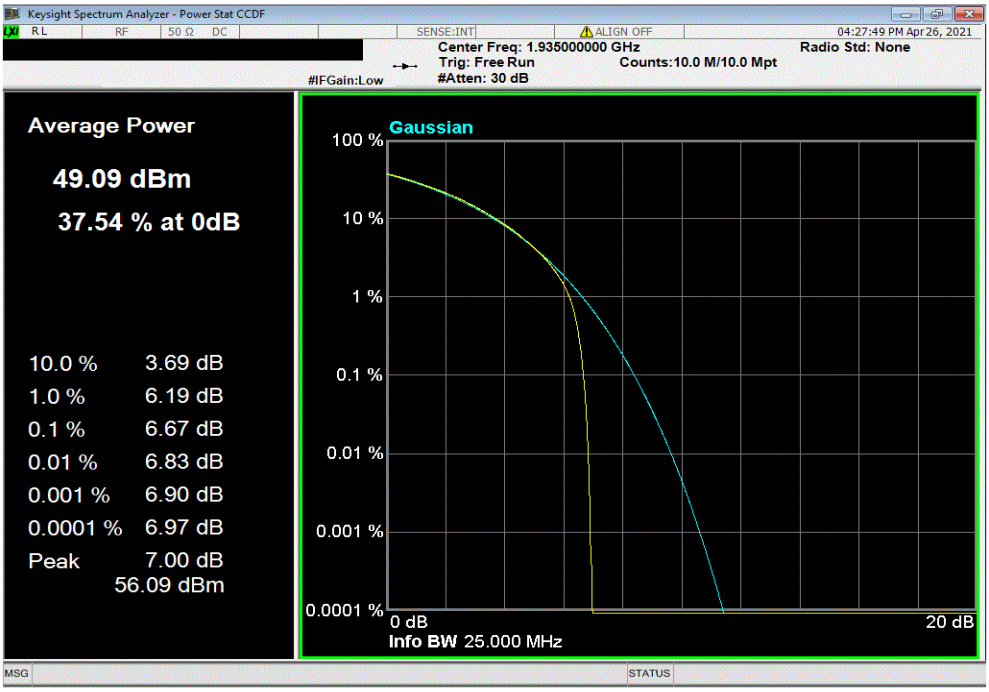


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 64-QAM Modulation, High Channel, 1985 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.69	13	Pass

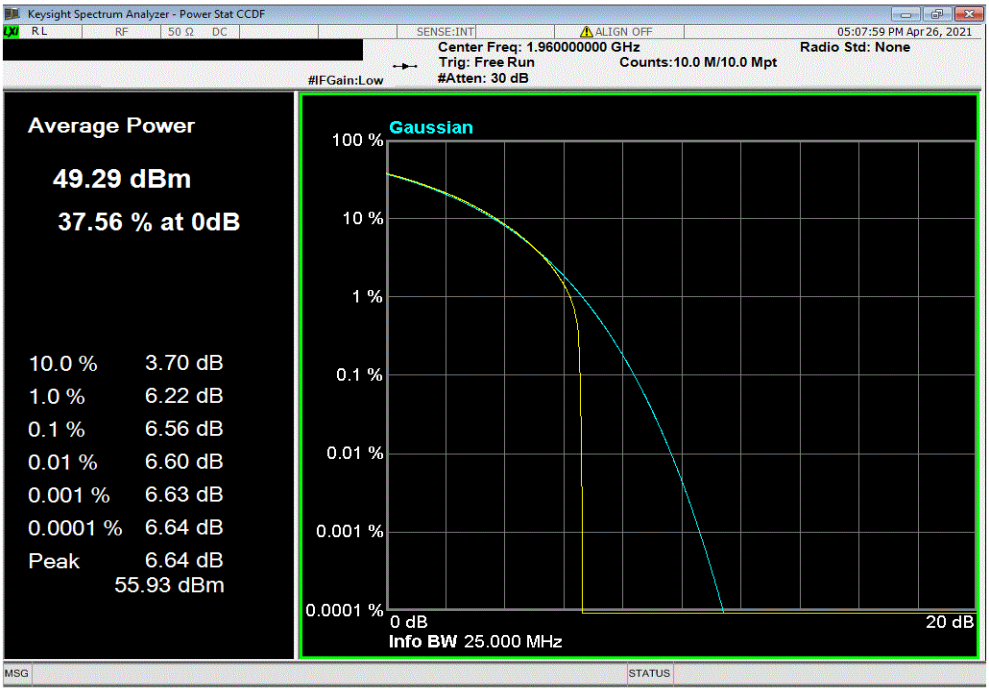


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1935 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.67	13	Pass

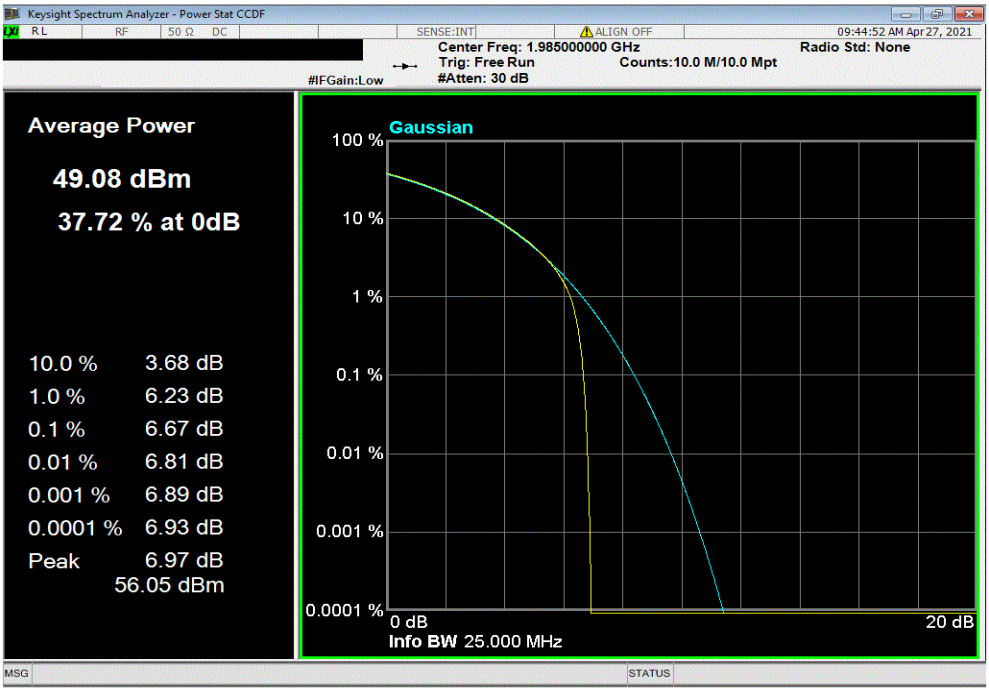


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.56	13	Pass

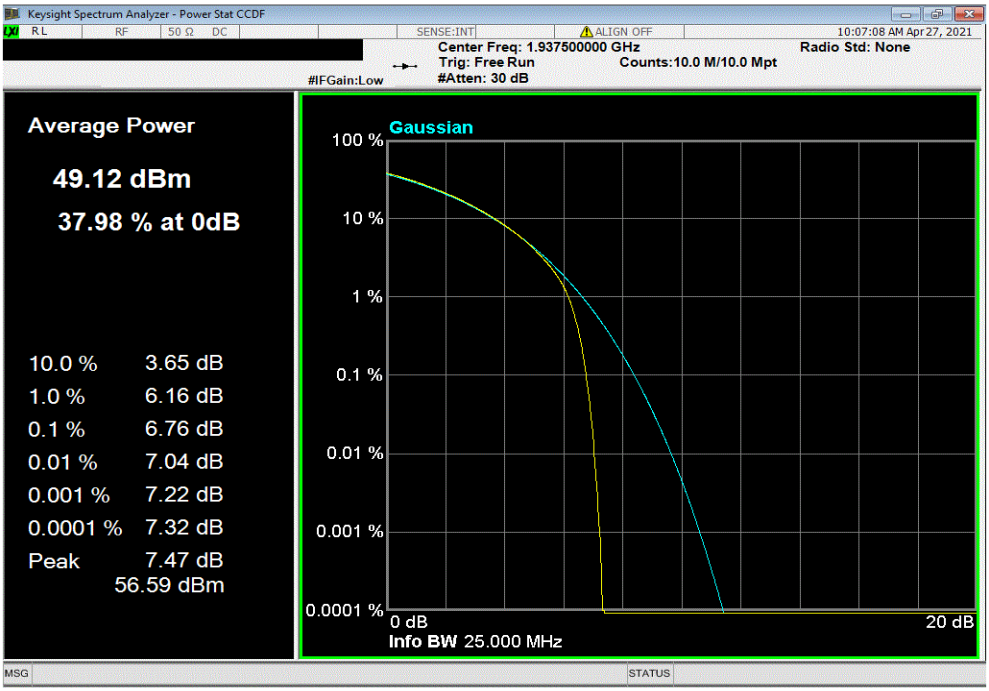


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 10 MHz Bandwdith, 256-QAM Modulation, High Channel, 1985 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.67	13	Pass

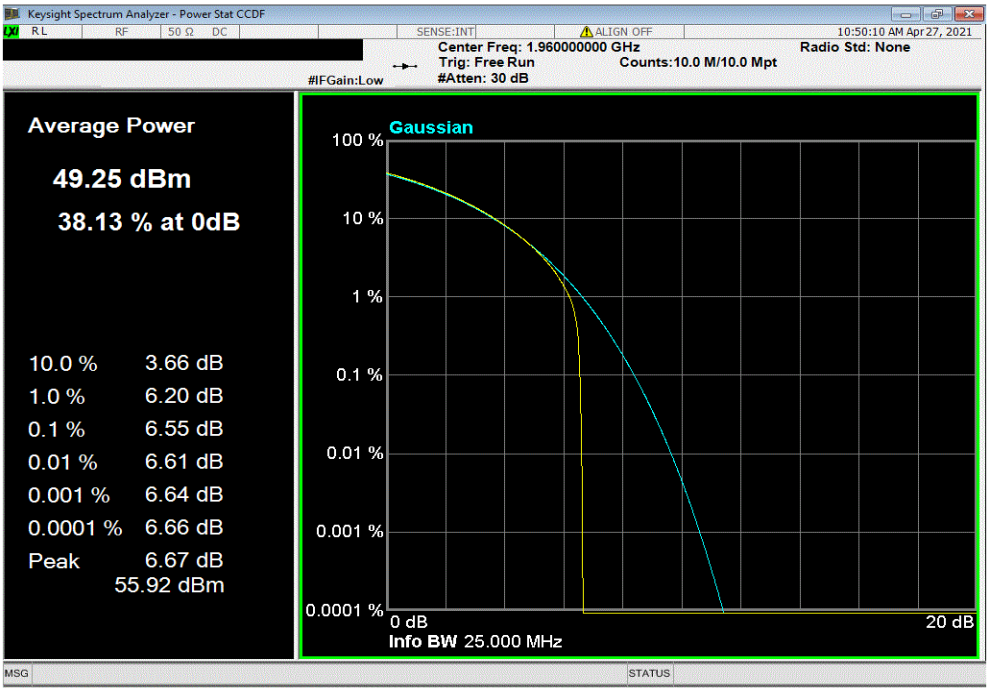


PEAK TO AVERAGE (PAPR) CCDF

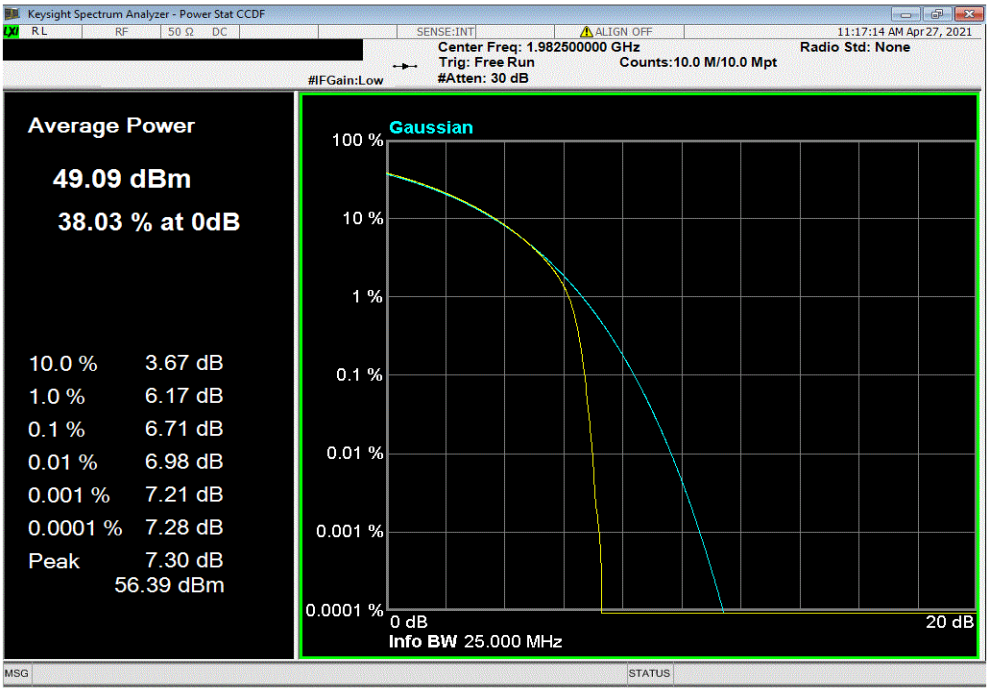
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, QPSK Modulation , Low Channel, 1937.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.76	13	Pass



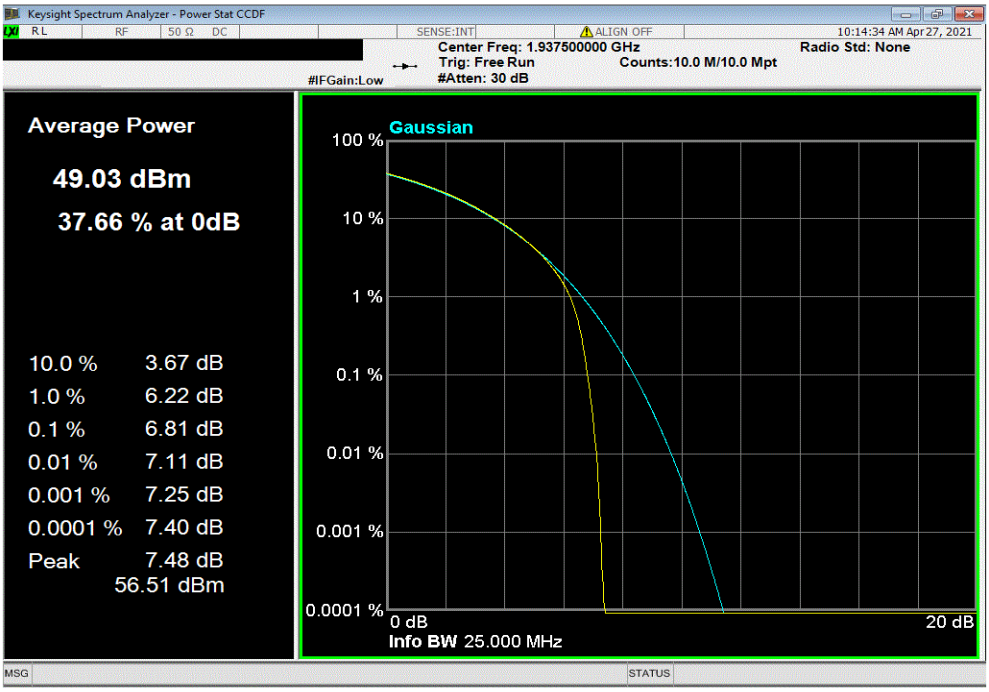
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.55	13	Pass



Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, QPSK Modulation , High Channel, 1982.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.71	13	Pass

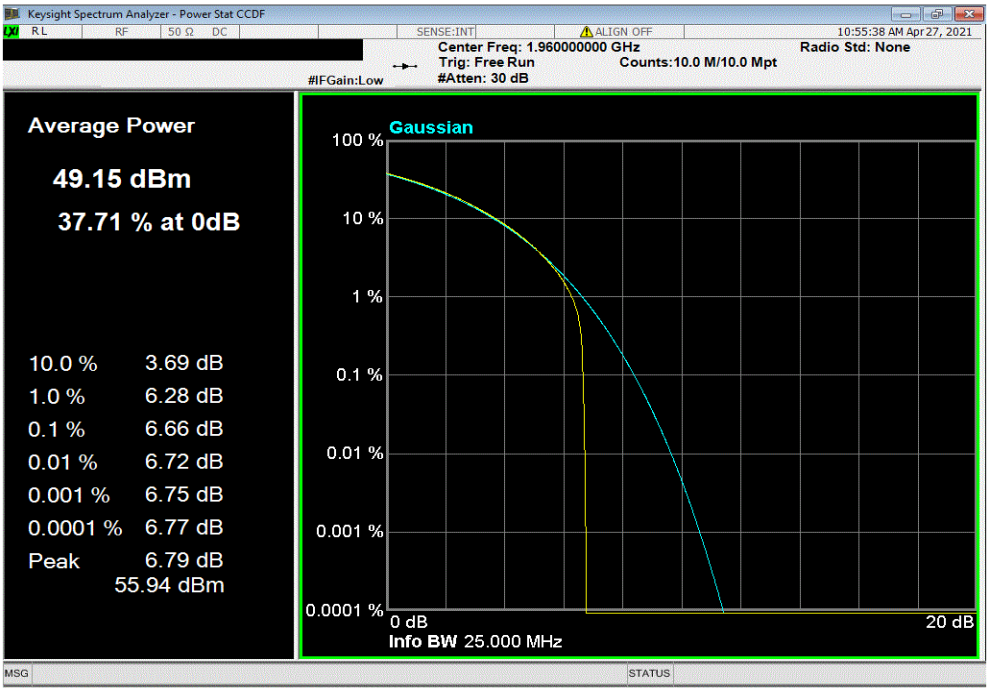


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1937.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.81	13	Pass

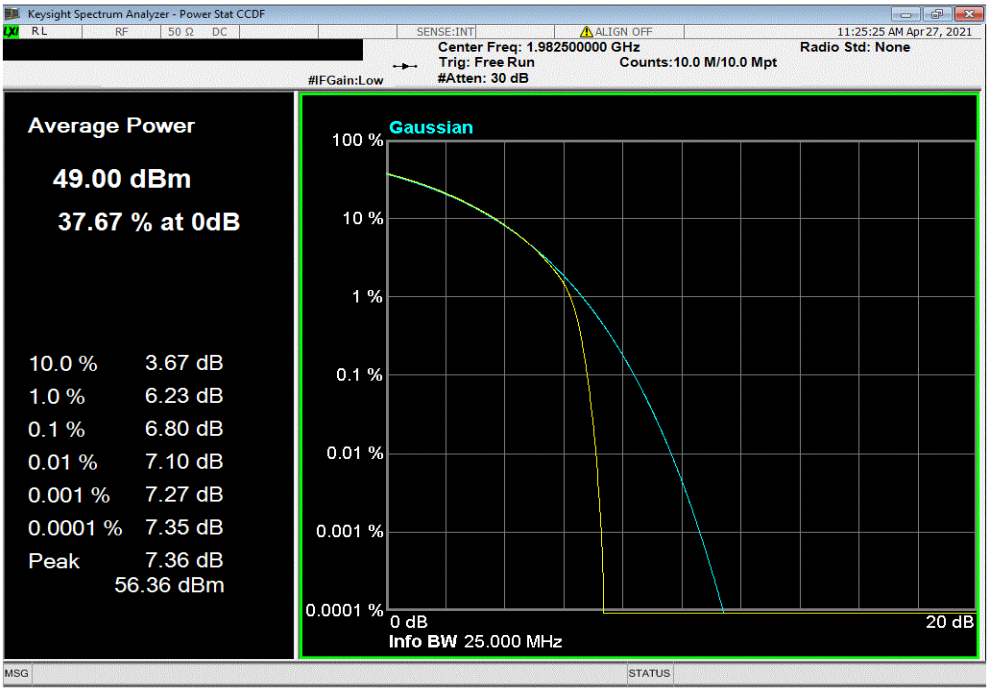


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.66	13	Pass

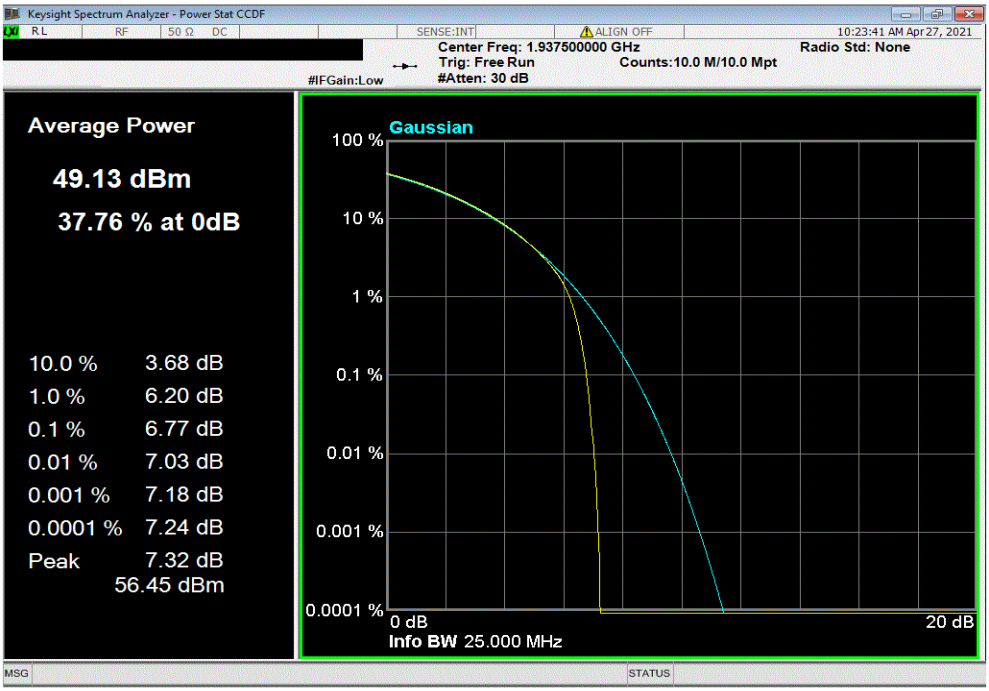


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 16-QAM Modulation, High Channel, 1982.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.8	13	Pass

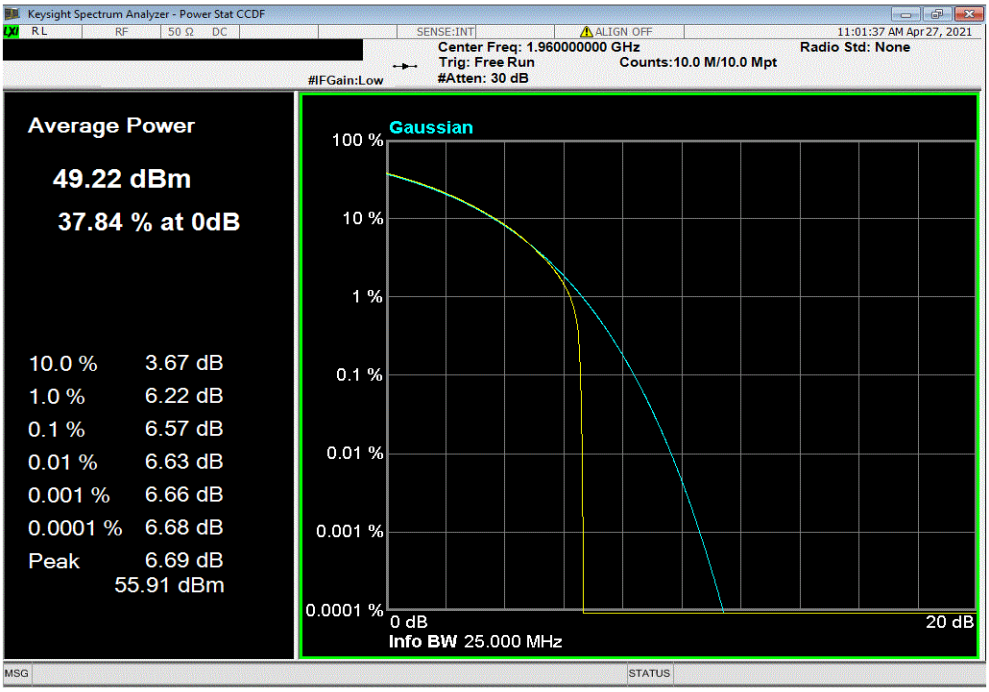


PEAK TO AVERAGE (PAPR) CCDF

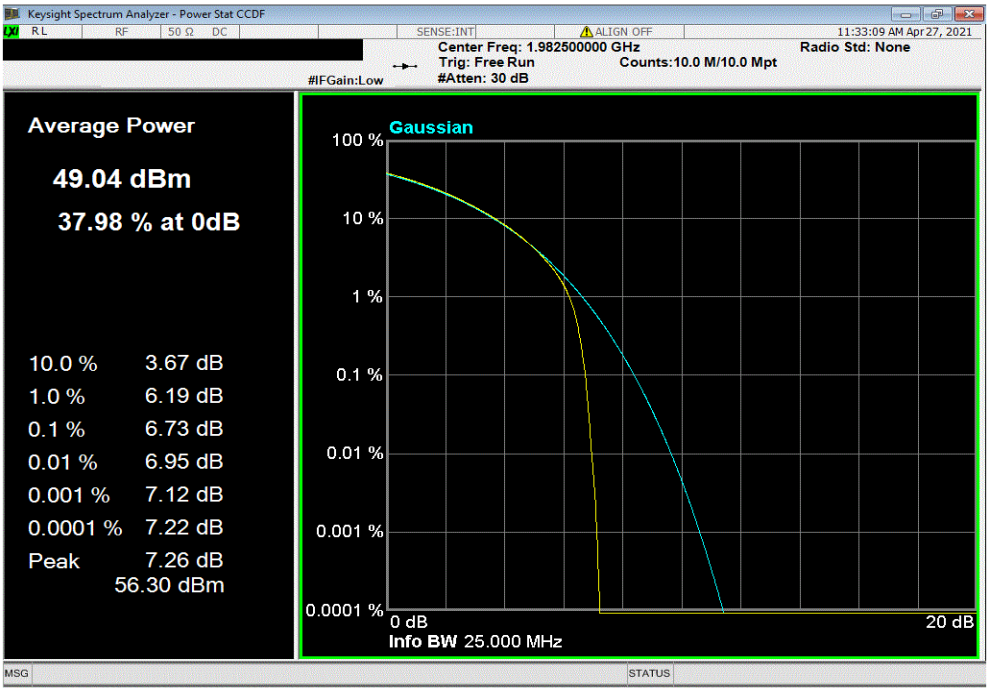
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1937.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.77	13	Pass



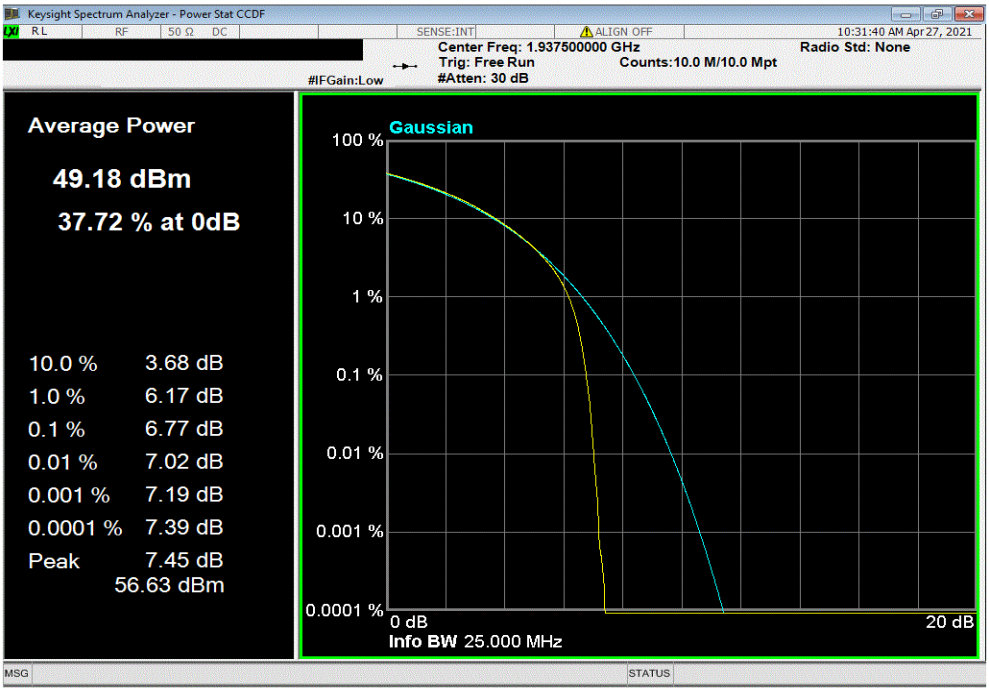
Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.57	13	Pass



Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 64-QAM Modulation, High Channel, 1982.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.73	13	Pass

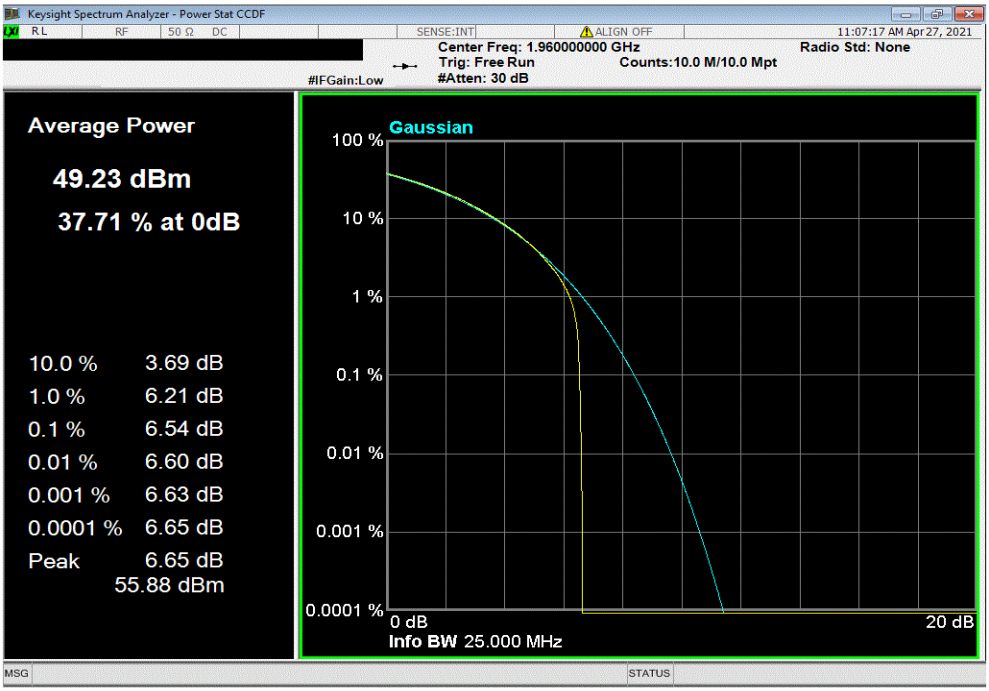


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1937.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.77	13	Pass

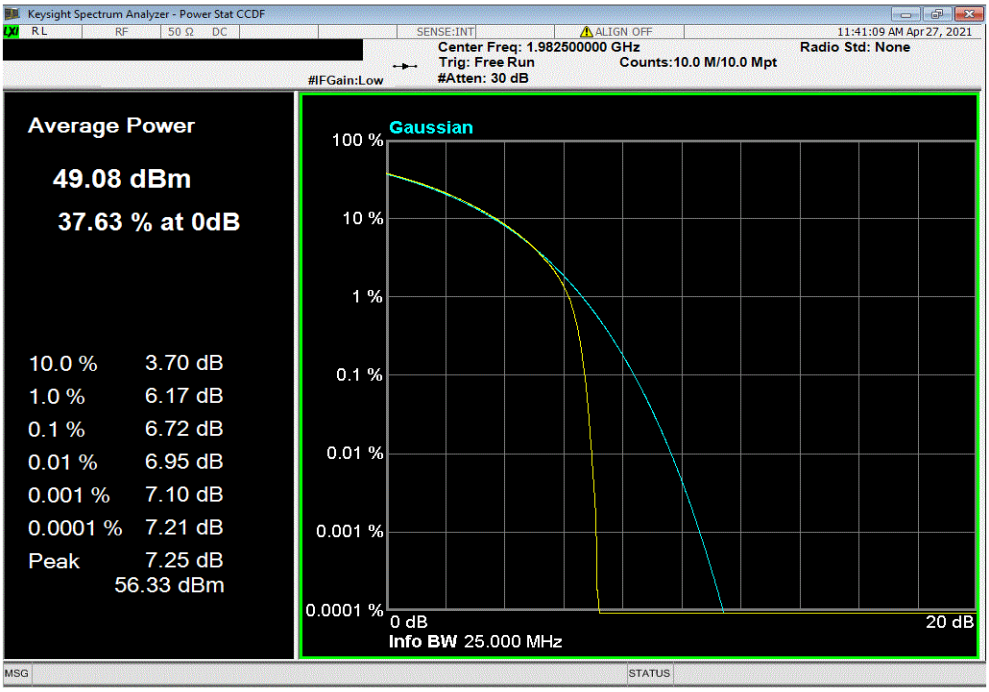


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.54	13	Pass

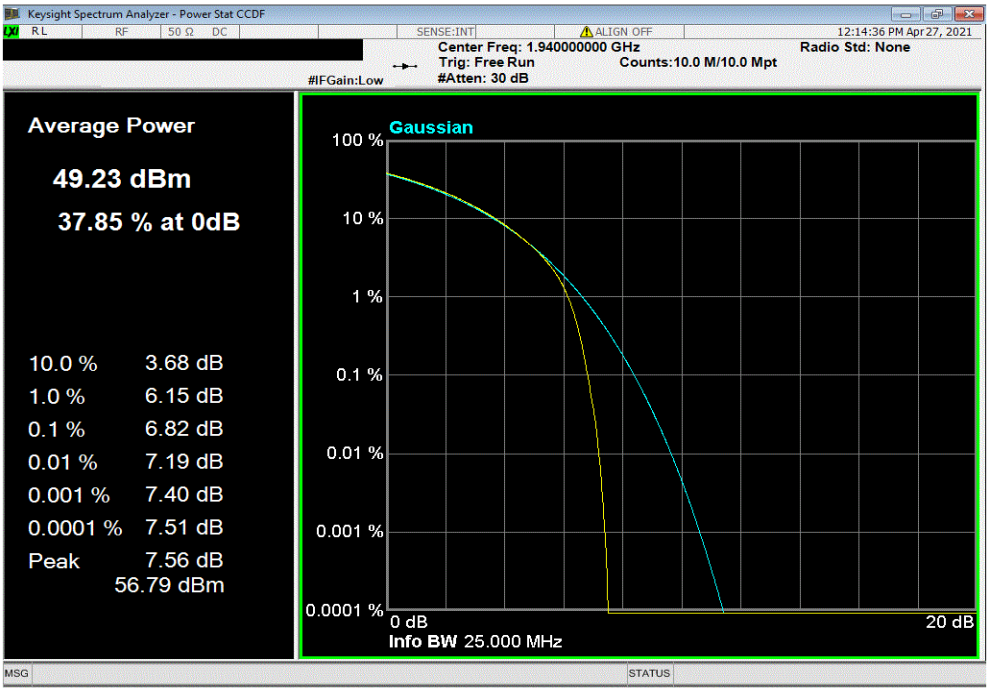


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 15 MHz Bandwdith, 256-QAM Modulation, High Channel, 1982.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.72	13	Pass

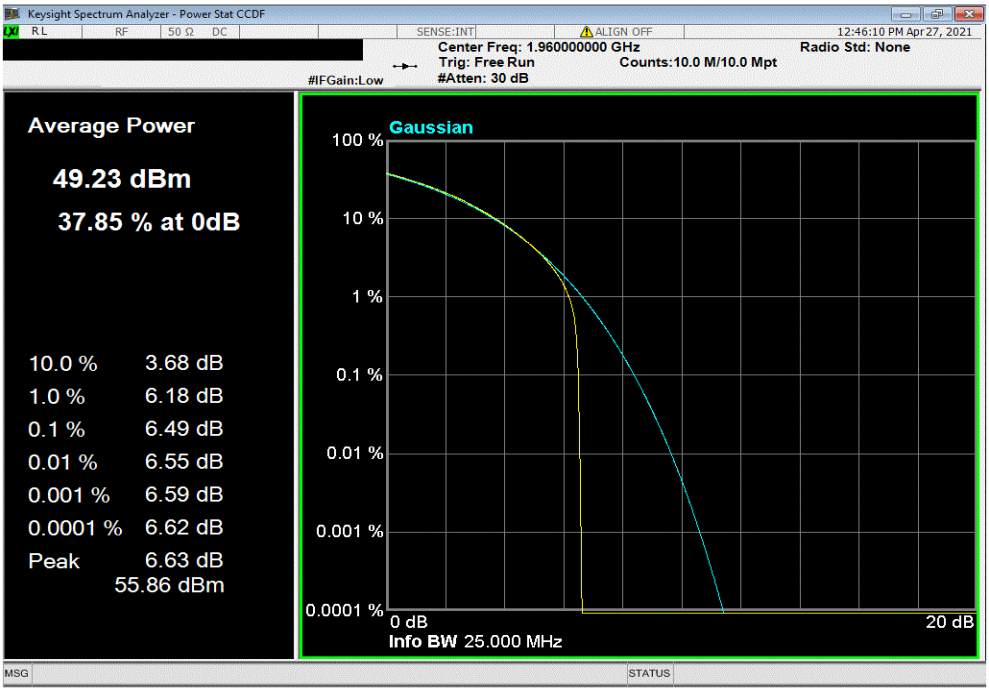


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, QPSK Modulation , Low Channel, 1940 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.82	13	Pass

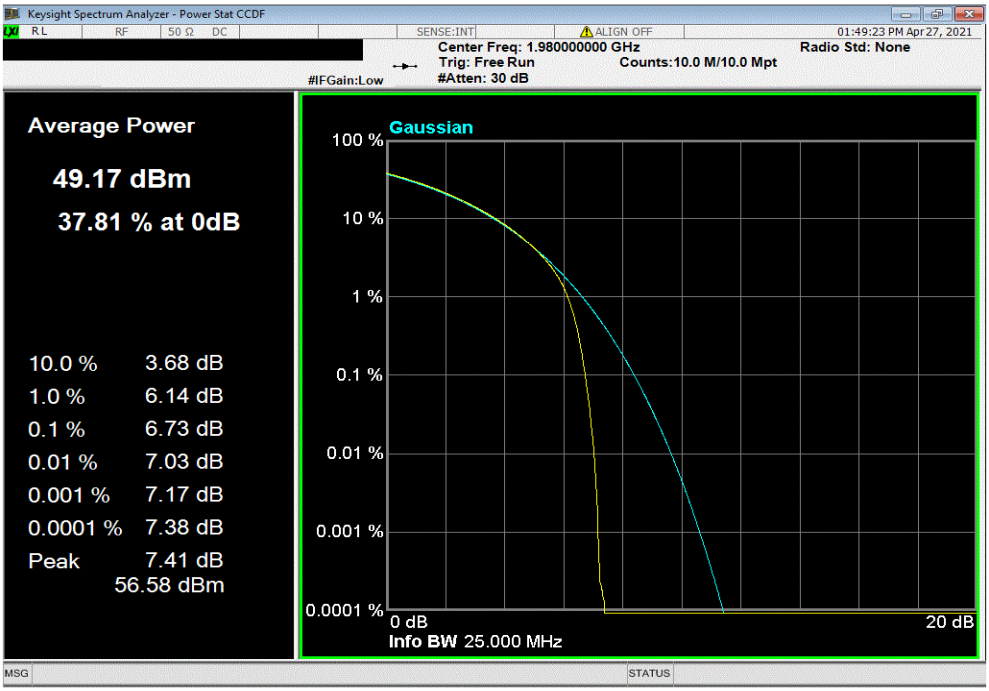


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, QPSK Modulation , Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.49	13	Pass

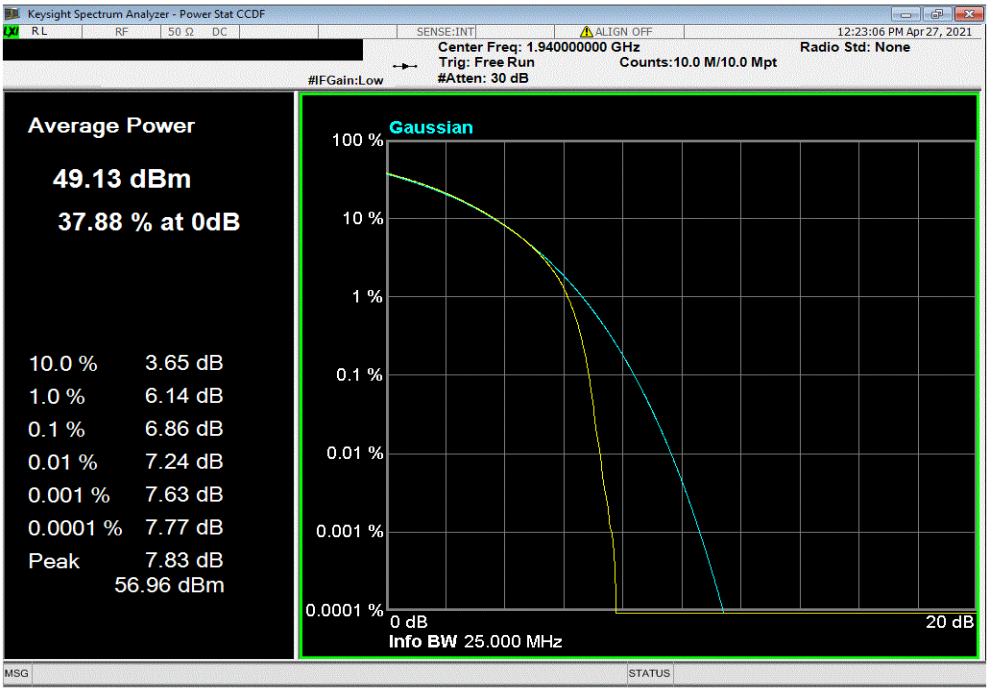


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, QPSK Modulation , High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.73	13	Pass

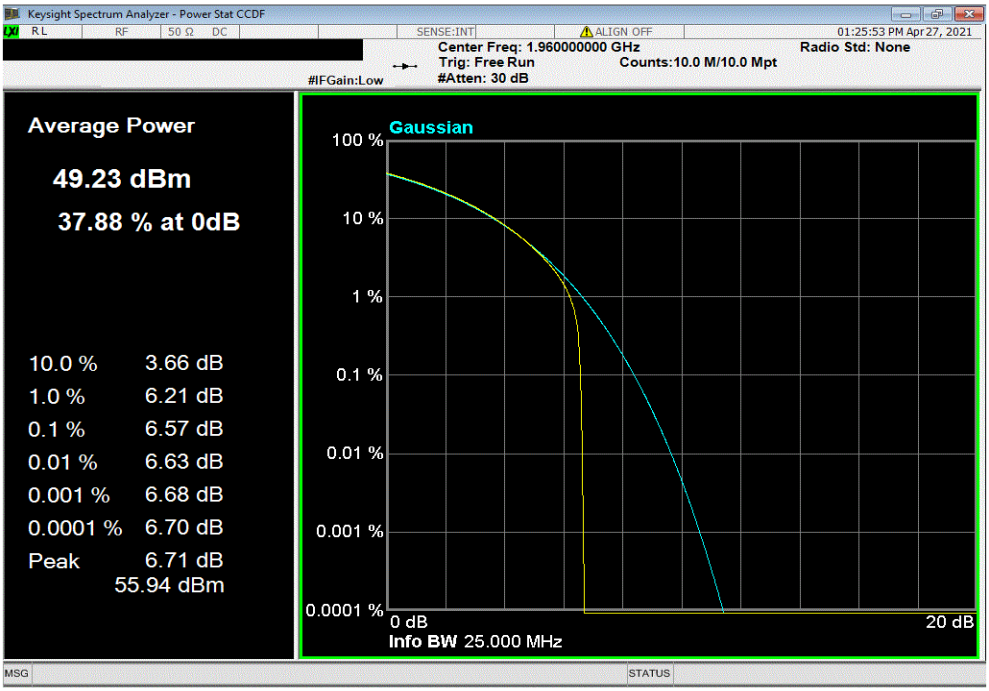


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 16-QAM Modulation, Low Channel, 1940 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.86	13	Pass

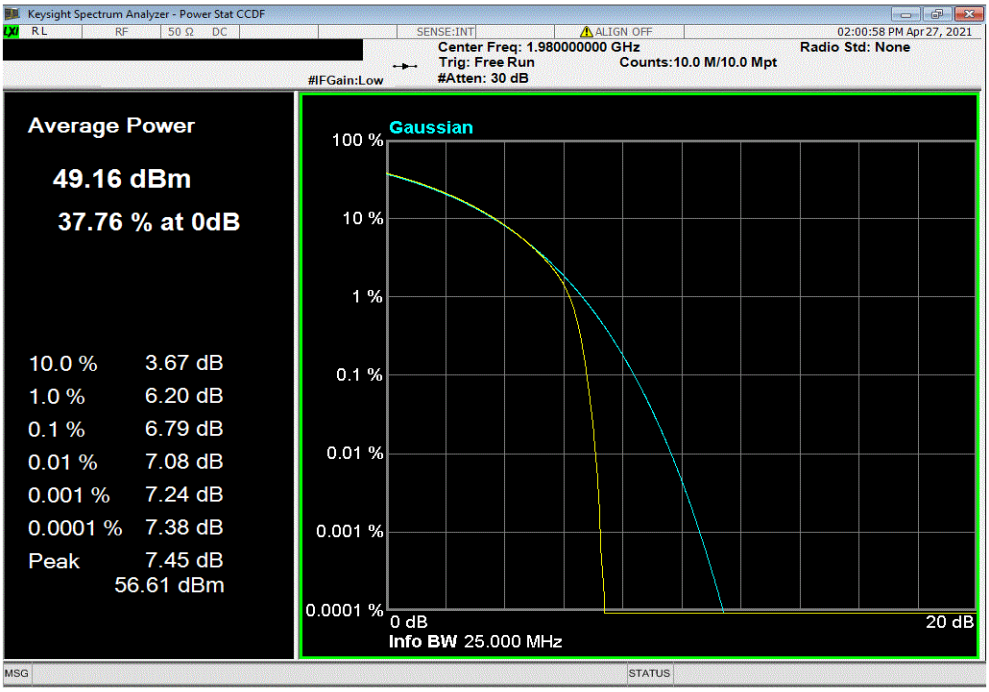


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 16-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.57	13	Pass

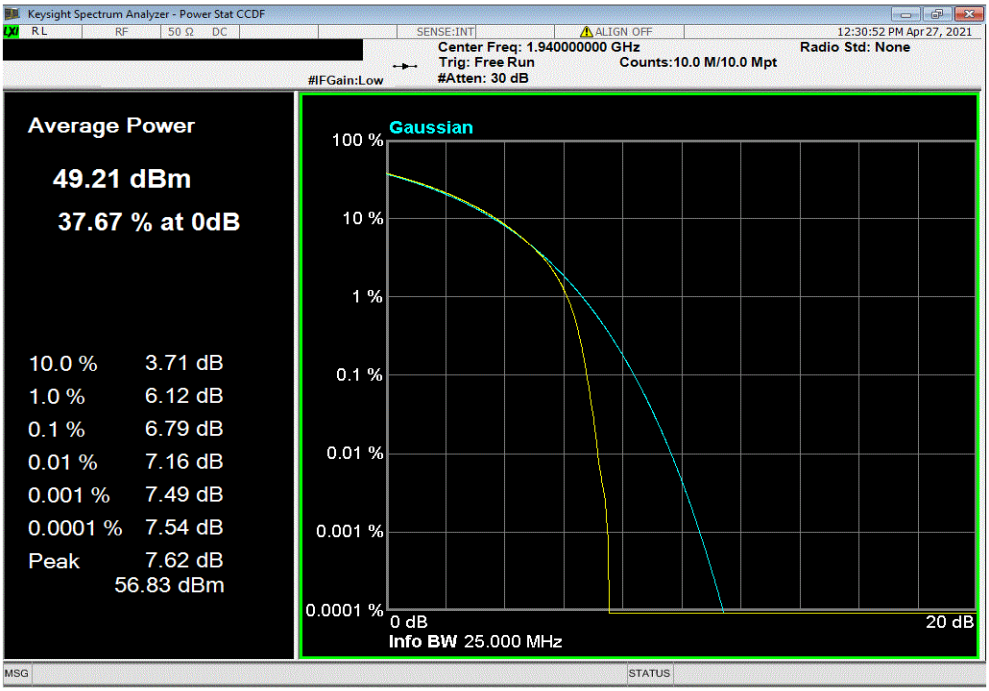


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 16-QAM Modulation, High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.79	13	Pass

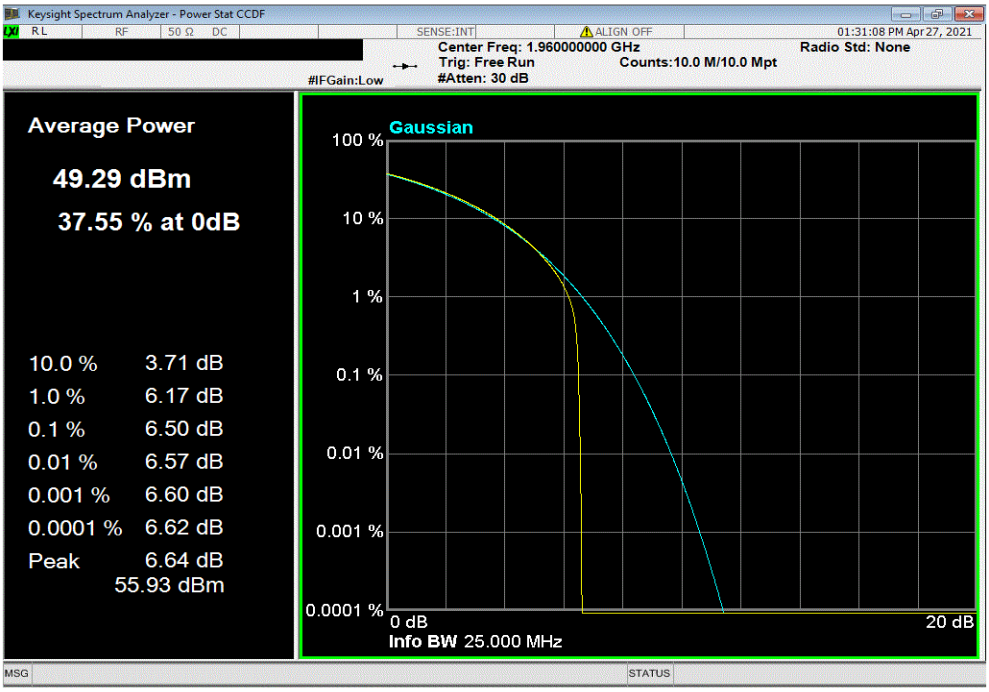


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 64-QAM Modulation, Low Channel, 1940 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.79	13	Pass

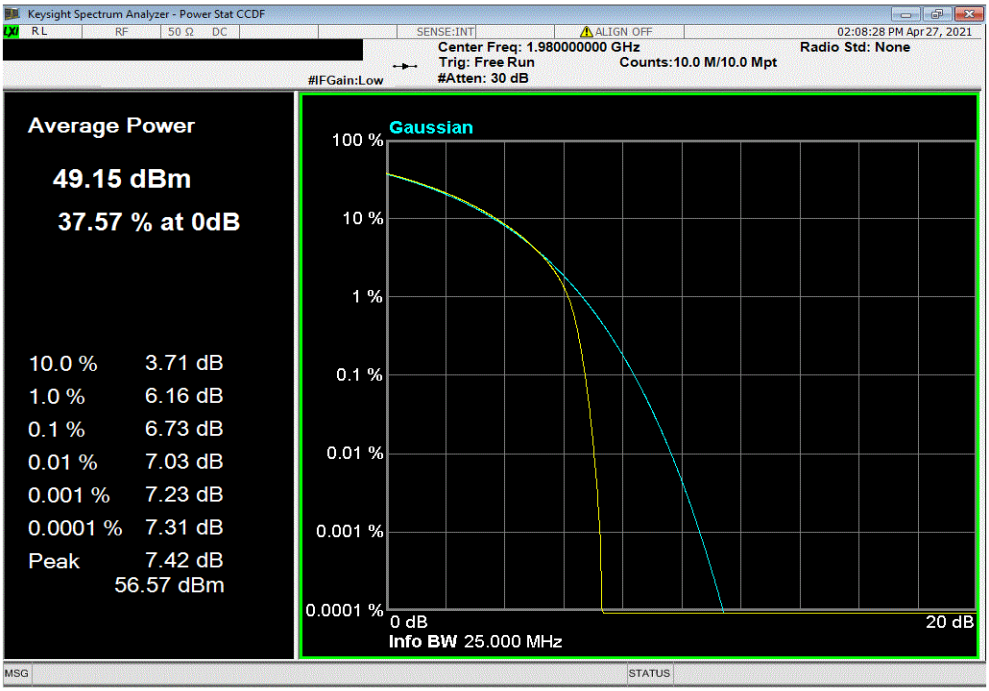


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 64-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.5	13	Pass

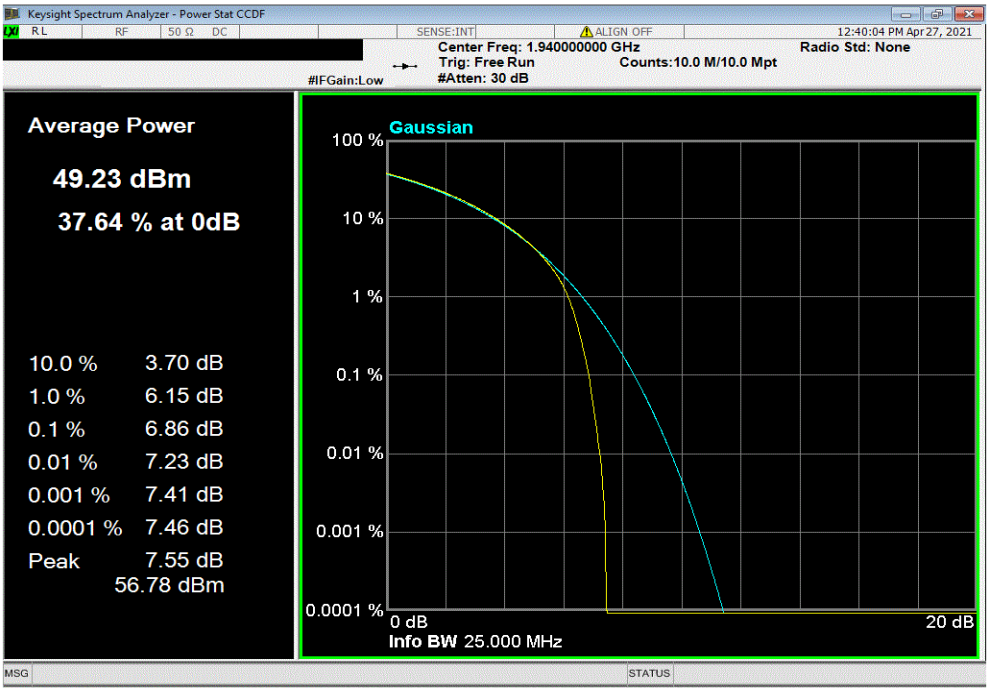


PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 64-QAM Modulation, High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.73	13	Pass

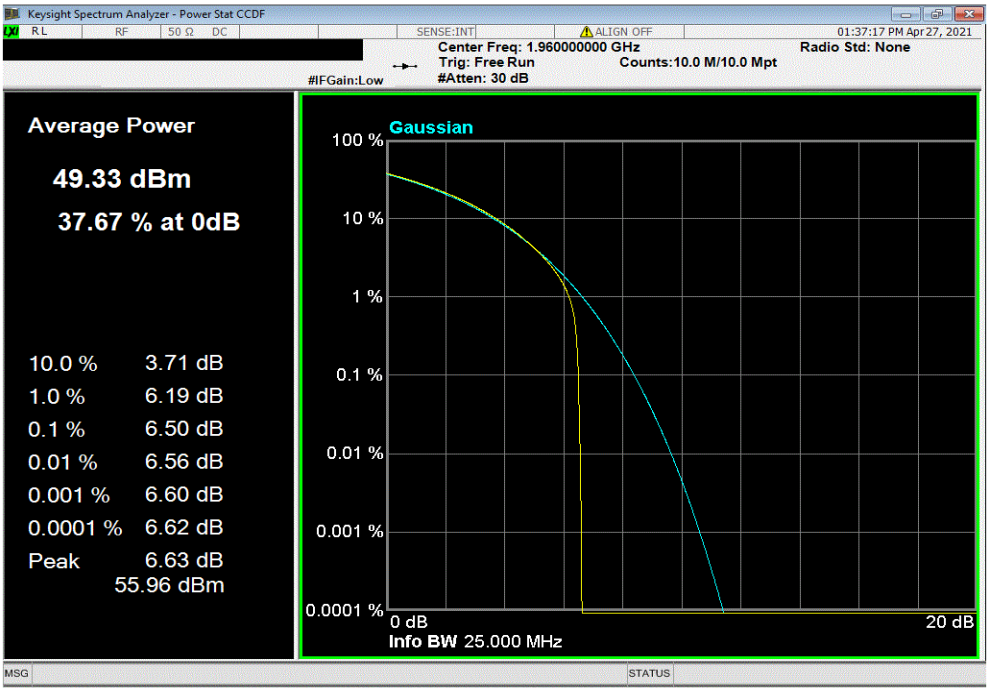


Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 256-QAM Modulation, Low Channel, 1940 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.86	13	Pass



PEAK TO AVERAGE (PAPR) CCDF

Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 256-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.5	13	Pass



Band n2, 1930 MHz - 1990 MHz, 5G NR, Port 3, 20 MHz Bandwdith, 256-QAM Modulation, High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				6.75	13	Pass