

SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMIT 2020.03.25.0

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
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-20
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21

TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the EUT through 4 different attenuation configurations which continues through to the RF input of the spectrum analyzer. Analyzer plots utilizing a resolution bandwidth called out by the client's test plan were made for each modulation type from 9 KHz to 22 GHz. The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than the limits also called out by the client's test plan shown below.

The measurement methods are detailed in KDB971168 D01v03 section 6 and ANSI C63.26-2015.

Per FCC 2.1057(a)(1) and RSS Gen 6.13, the upper level of measurement is the 10th harmonic of the highest fundamental frequency.

These measurements are for frequency band after the first 1.0 MHz bands immediately outside and adjacent to the frequency block.

Per section FCC 27.53(h)(1) and RSS-139 6.6, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm for a 1 MHz measurement bandwidth. The limit is adjusted to -19 dBm $[-13 \text{ dBm} - 10 \log(4)]$ per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

The limit for the 9kHz to 150kHz frequency range was adjusted to -49dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 1MHz [i.e.: $-49\text{dBm} = -19\text{dBm} - 10\log(1\text{MHz}/1\text{kHz})$]. The limit for the 150kHz to 20MHz frequency range was adjusted to -39dBm to correct for a spectrum analyzer RBW of 10kHz versus required RBW of 1MHz [i.e.: $-39\text{dBm} = -19\text{dBm} - 10\log(1\text{MHz}/10\text{kHz})$]. The required limit of -19dBm with a RBW of > 1MHz was used for all other frequency ranges.

SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND

66a



XMM 2020.03.25.0

EUT:	AHFIC	Work Order:	NOKI0007
Serial Number:	K9180317594	Date:	8-Apr-20
Customer:	Nokia Solutions and Networks	Temperature:	22.3 °C
Attendees:	Mitch Hill, John Rattanavong	Humidity:	46.9% RH
Project:	None	Barometric Pres.:	1016 mbar
Tested by:	Brandon Hobbs	Power:	54 VDC
		Job Site:	TX03
TEST SPECIFICATIONS		Test Method	
FCC 27:2020		ANSI C63.26:2015	
RSS-139:2015, RSS-Gen:2019		RSS-139:2015, RSS-Gen:2019	
COMMENTS			
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. The hottest port was used for testing. The worst case port was determined in the original client test report. The carrier power was set to maximum for all testing.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1,2,3,4	Signature 	
		Value (dBm)	Limit (dBm)
			Result

Band 66a, 2110 MHz - 2180 MHz, 5G

Port 3

5 MHz Bandwidth

QPSK Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-58.8	-49	Pass
Range 2, 150 kHz - 20 MHz	-60.4	-39	Pass
Range 3, 20 MHz - 3 GHz	-27.5	-19	Pass
Range 4, 3 GHz - 18 GHz	-36.5	-19	Pass
Range 5, 18 GHz - 22 GHz	-28.8	-19	Pass

16-QAM Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-59.9	-49	Pass
Range 2, 150 kHz - 20 MHz	-61.7	-39	Pass
Range 3, 20 MHz - 3 GHz	-27.9	-19	Pass
Range 4, 3 GHz - 18 GHz	-36.0	-19	Pass
Range 5, 18 GHz - 22 GHz	-28.0	-19	Pass

64-QAM Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-60.0	-49	Pass
Range 2, 150 kHz - 20 MHz	-61.9	-39	Pass
Range 3, 20 MHz - 3 GHz	-27.7	-19	Pass
Range 4, 3 GHz - 18 GHz	-37.0	-19	Pass
Range 5, 18 GHz - 22 GHz	-28.1	-19	Pass

256-QAM Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-59.1	-49	Pass
Range 2, 150 kHz - 20 MHz	-60.6	-39	Pass
Range 3, 20 MHz - 3 GHz	-28.0	-19	Pass
Range 4, 3 GHz - 18 GHz	-37.0	-19	Pass
Range 5, 18 GHz - 22 GHz	-29.2	-19	Pass

10 MHz Bandwidth

256-QAM Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-59.3	-49	Pass
Range 2, 150 kHz - 20 MHz	-62.0	-39	Pass
Range 3, 20 MHz - 3 GHz	-27.4	-19	Pass
Range 4, 3 GHz - 18 GHz	-37.6	-19	Pass
Range 5, 18 GHz - 22 GHz	-28.8	-19	Pass

15 MHz Bandwidth

256-QAM Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-59.1	-49	Pass
Range 2, 150 kHz - 20 MHz	-61.2	-39	Pass
Range 3, 20 MHz - 3 GHz	-27.4	-19	Pass
Range 4, 3 GHz - 18 GHz	-37.7	-19	Pass
Range 5, 18 GHz - 22 GHz	-29.0	-19	Pass

20 MHz Bandwidth

256-QAM Modulation, Mid Channel

Range 1, 9 kHz - 150 kHz	-58.0	-49	Pass
Range 2, 150 kHz - 20 MHz	-62.8	-39	Pass
Range 3, 20 MHz - 3 GHz	-27.2	-19	Pass
Range 4, 3 GHz - 18 GHz	-37.0	-19	Pass
Range 5, 18 GHz - 22 GHz	-28.5	-19	Pass

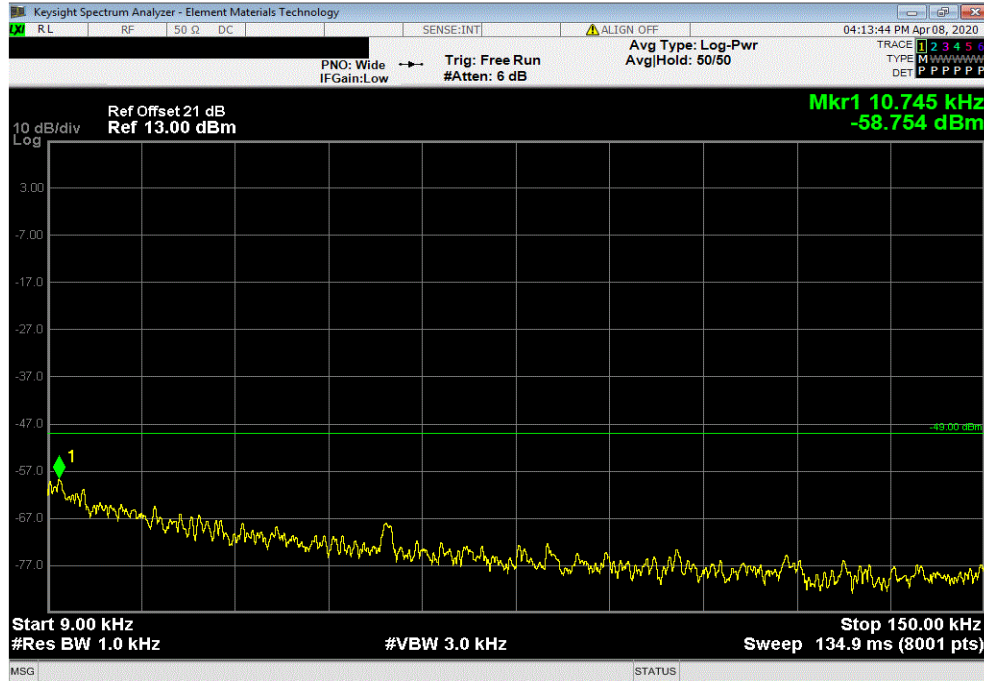
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

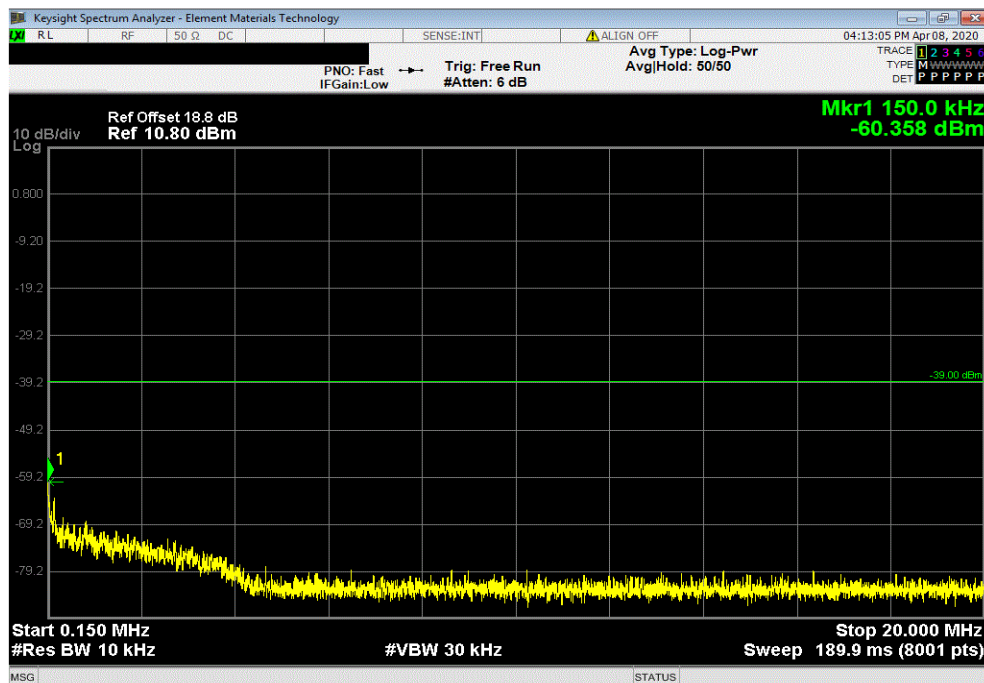
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel , Range 1, 9 kHz - 150 kHz

				Value (dBm)	Limit (dBm)	Result
				-58.754	-49	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel , Range 2, 150 kHz - 20 MHz

				Value (dBm)	Limit (dBm)	Result
				-60.358	-39	Pass



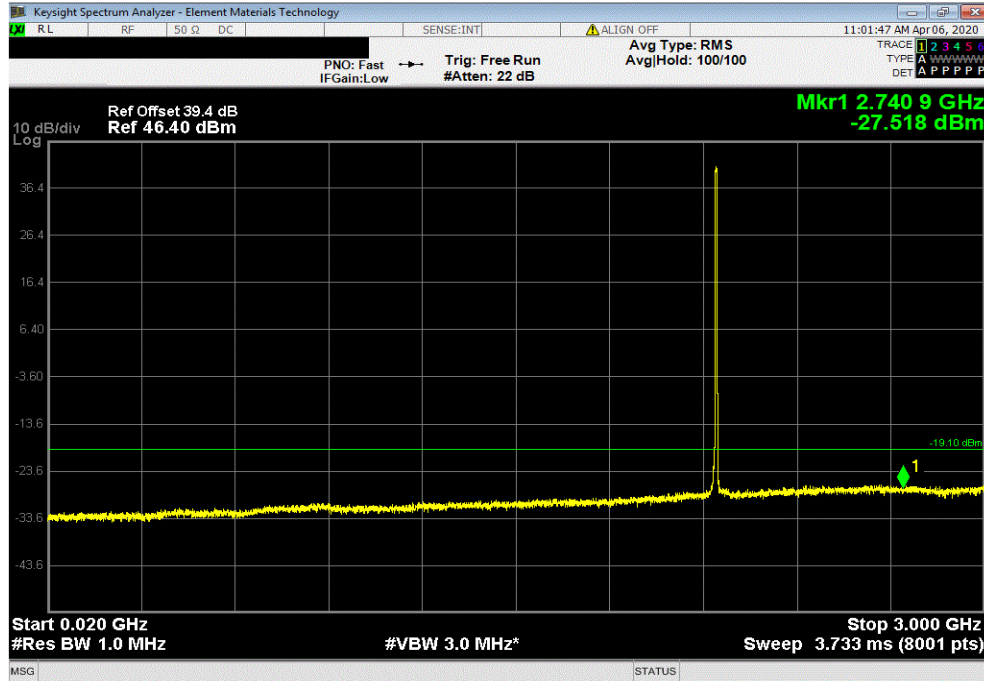
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

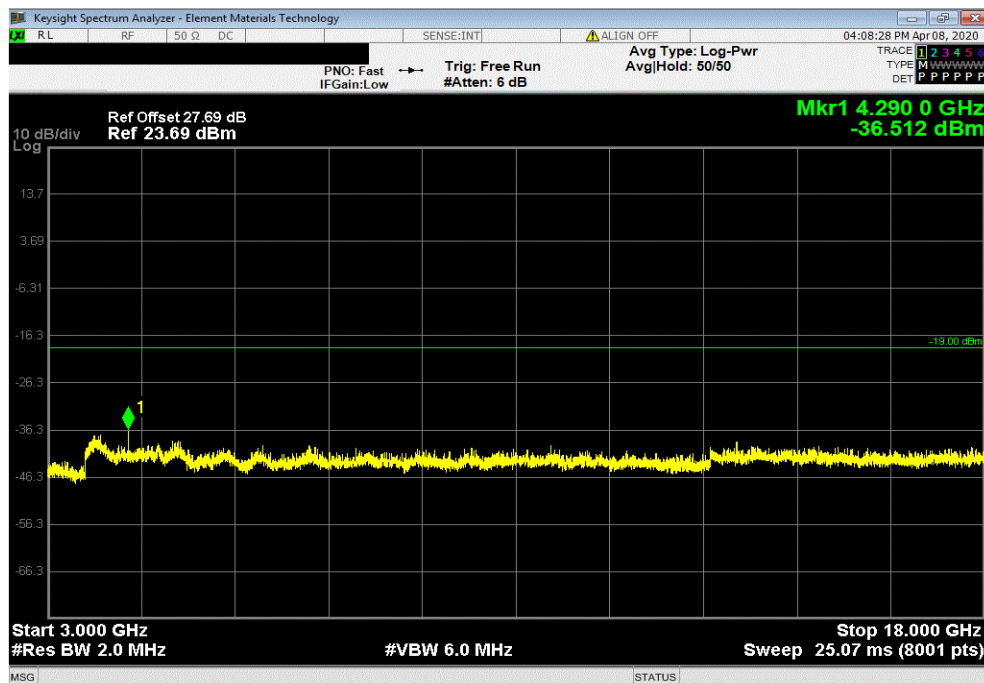
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel , Range 3, 20 MHz - 3 GHz

				Value (dBm)	Limit (dBm)	Result
				-27.518	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel , Range 4, 3 GHz - 18 GHz

				Value (dBm)	Limit (dBm)	Result
				-36.512	-19	Pass

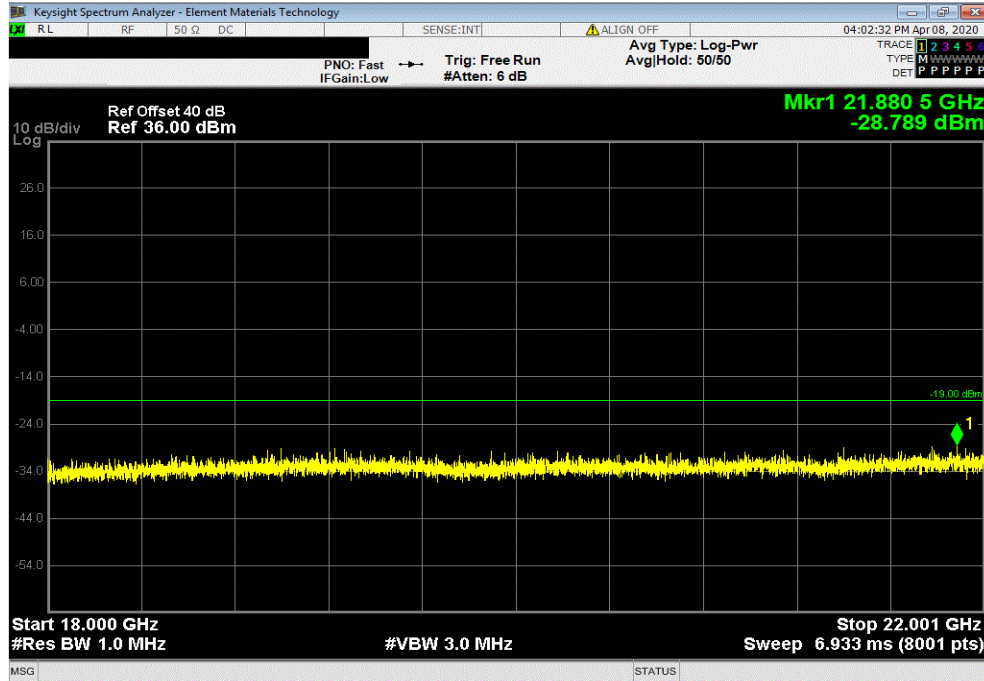


SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a

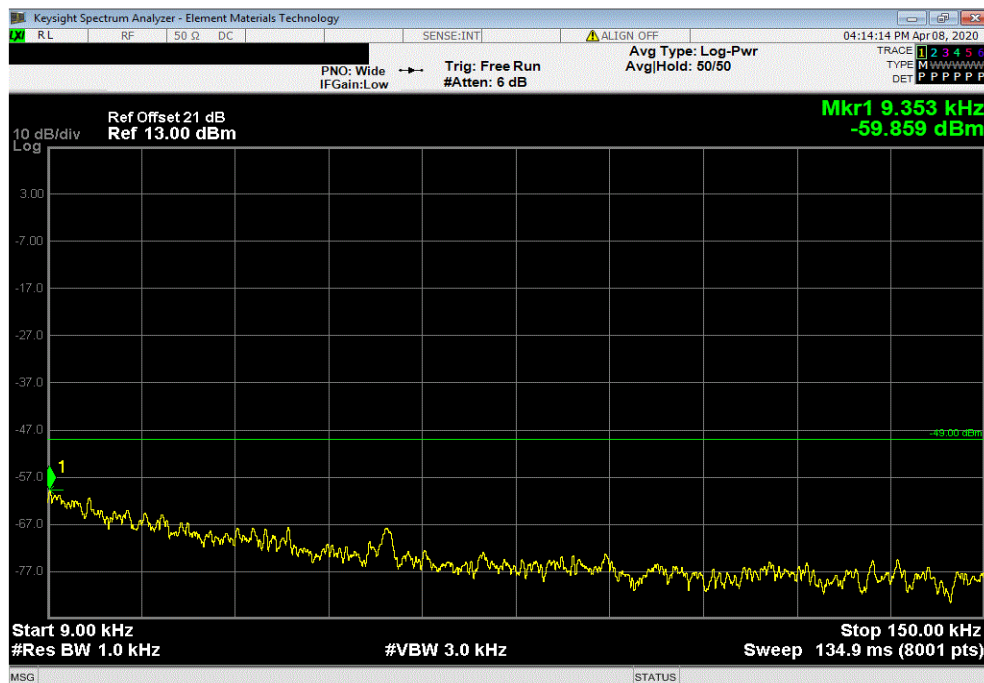


XMI 2020.03.25.0

Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, QPSK Modulation, Mid Channel , Range 5, 18 GHz - 22 GHz						
				Value (dBm)	Limit (dBm)	Result
				-28.789	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, Range 1, 9 kHz - 150 kHz						
				Value (dBm)	Limit (dBm)	Result
				-59.859	-49	Pass



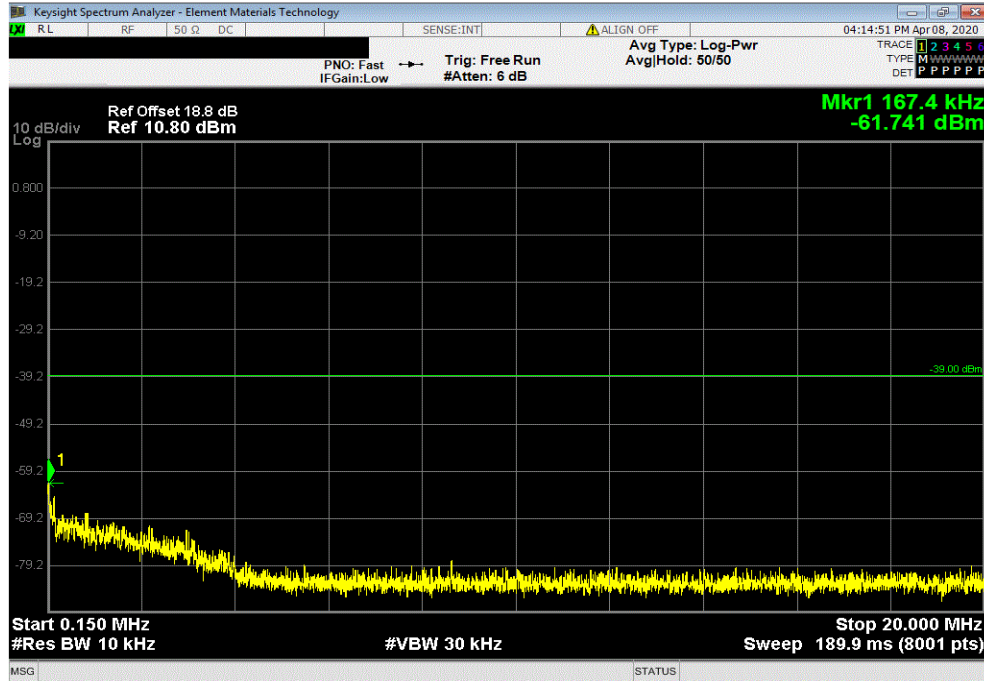
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

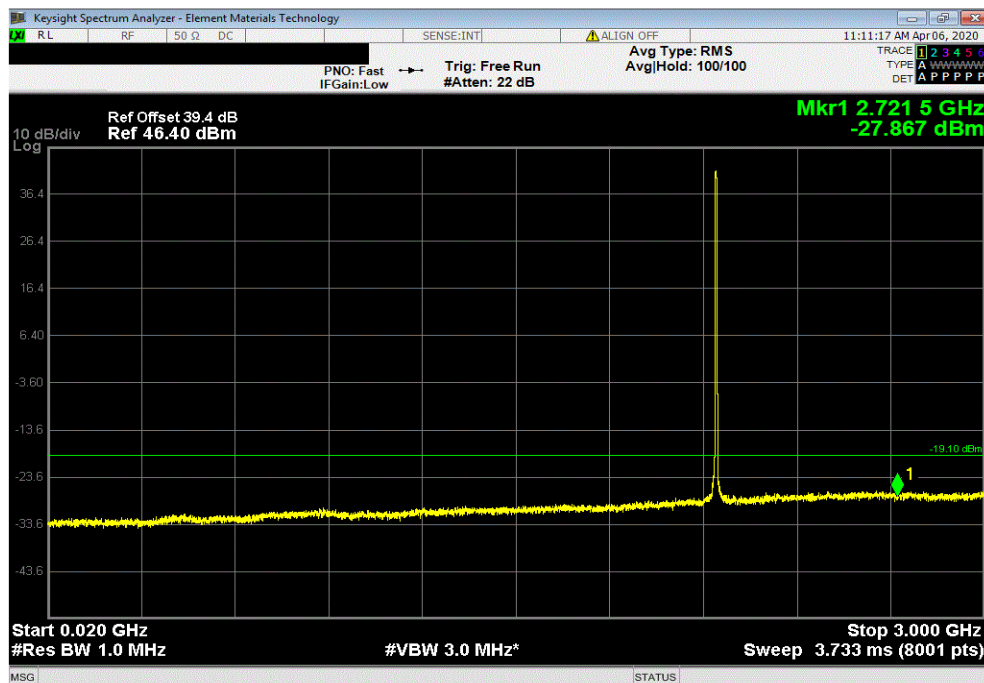
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, Range 2, 150 kHz - 20 MHz

				Value (dBm)	Limit (dBm)	Result
				-61.741	-39	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, Range 3, 20 MHz - 3 GHz

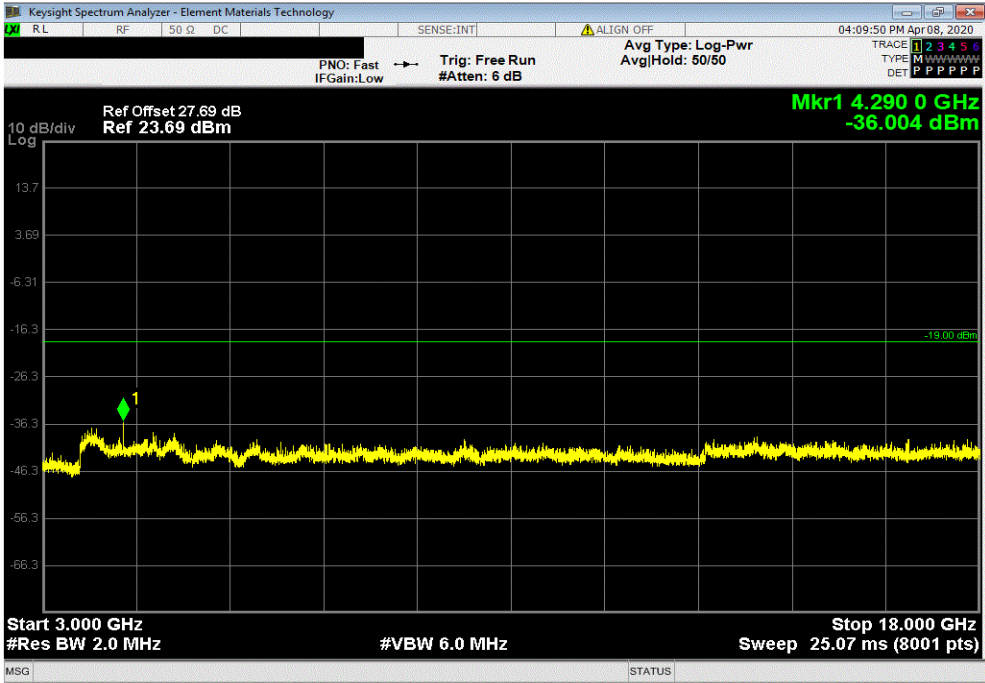
				Value (dBm)	Limit (dBm)	Result
				-27.867	-19	Pass



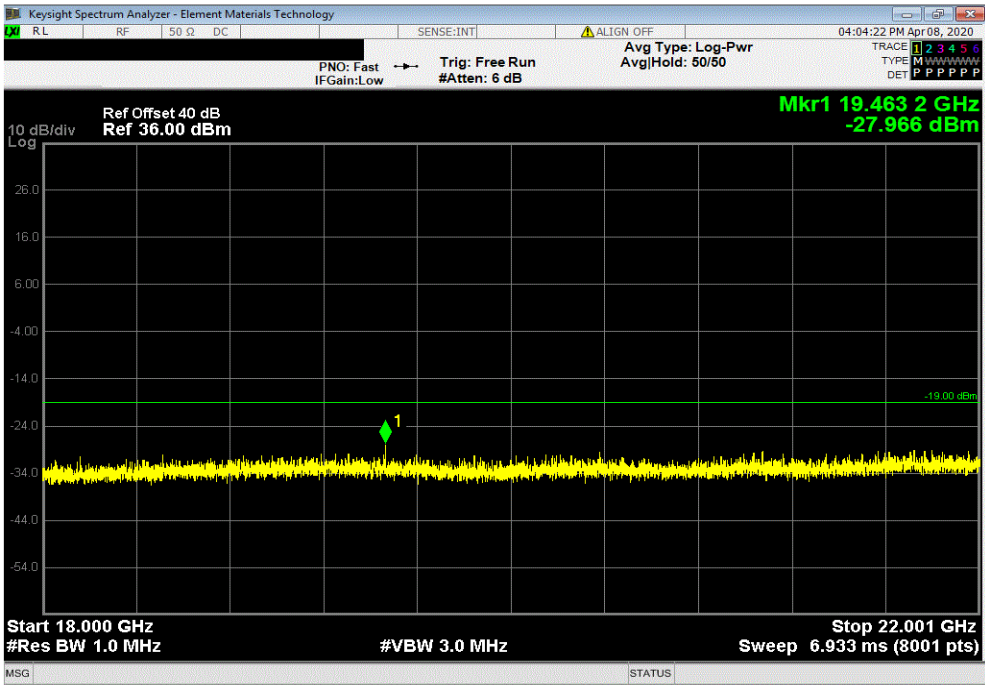
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS
BAND 66a



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, Range 4, 3 GHz - 18 GHz						
				Value (dBm)	Limit (dBm)	Result
				-36.004	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, Range 5, 18 GHz - 22 GHz						
				Value (dBm)	Limit (dBm)	Result
				-27.966	-19	Pass

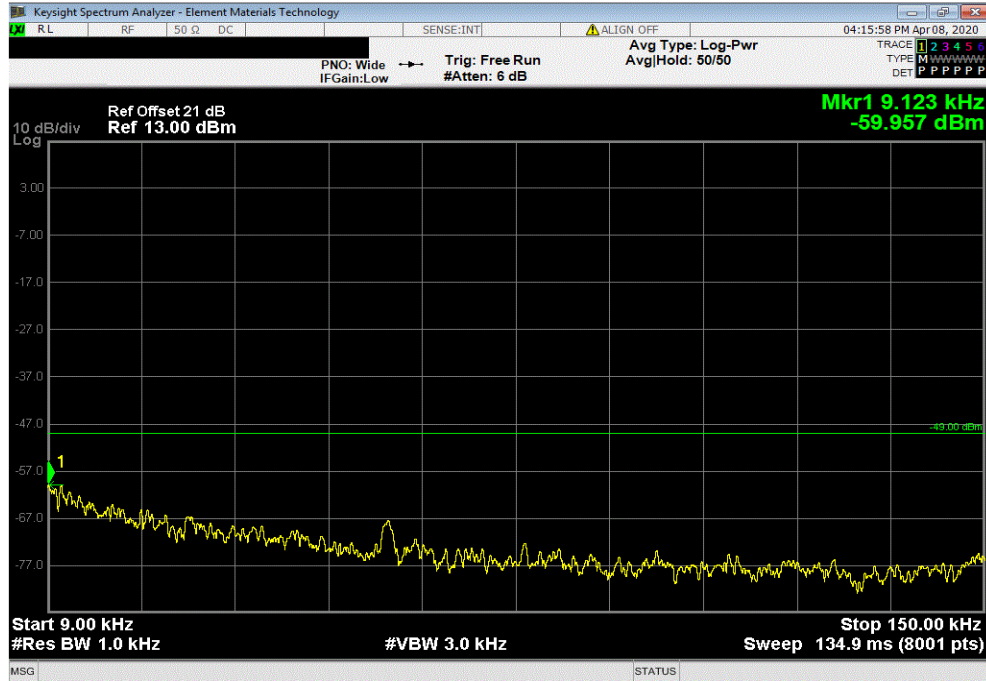


SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a

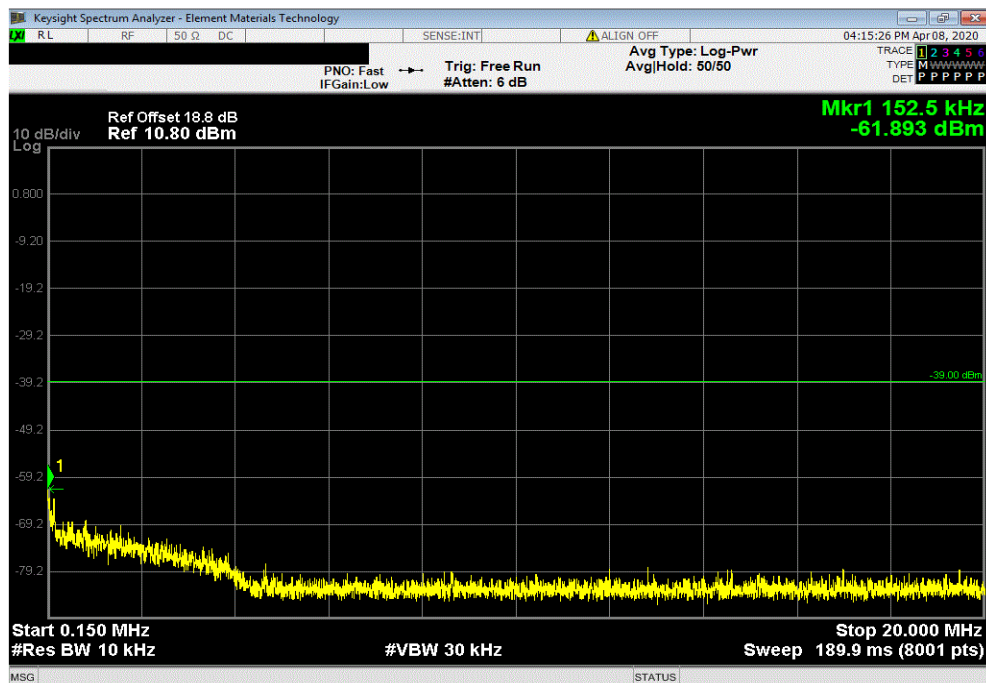


XMI 2020.03.25.0

Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, Range 1, 9 kHz - 150 kHz						
				Value (dBm)	Limit (dBm)	Result
				-59.957	-49	Pass



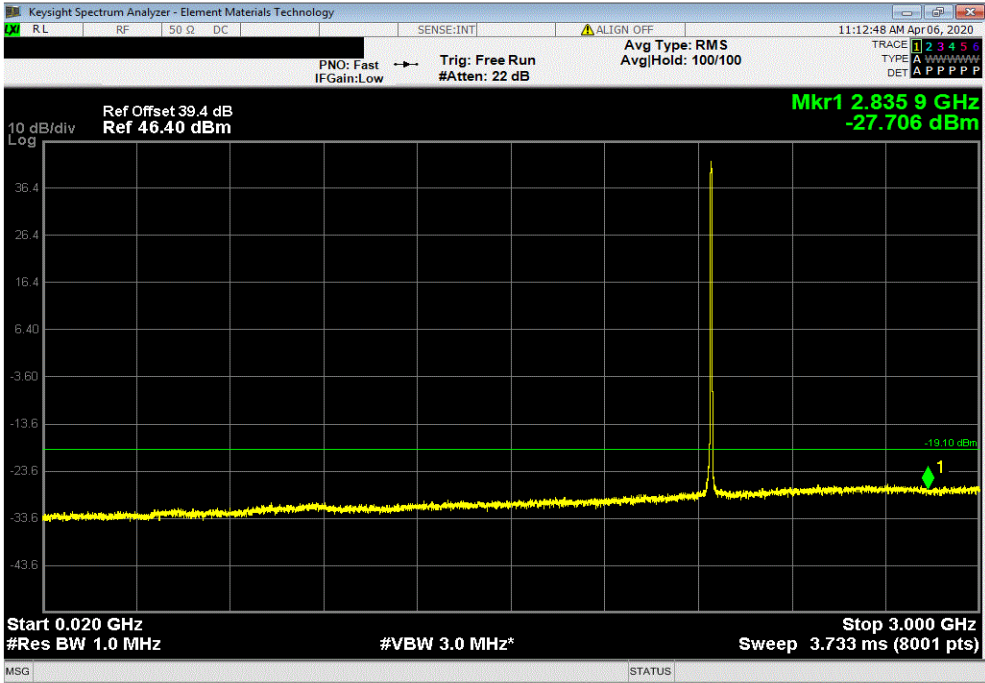
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, Range 2, 150 kHz - 20 MHz						
				Value (dBm)	Limit (dBm)	Result
				-61.893	-39	Pass



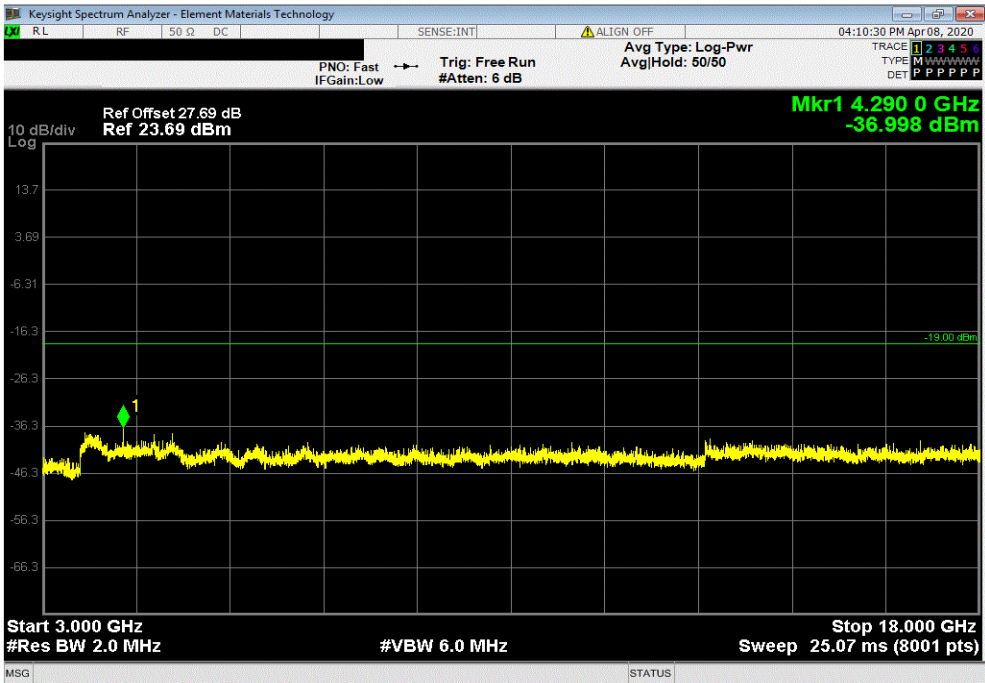
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS
BAND 66a



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, Range 3, 20 MHz - 3 GHz						
				Value (dBm)	Limit (dBm)	Result
				-27.706	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, Range 4, 3 GHz - 18 GHz						
				Value (dBm)	Limit (dBm)	Result
				-36.998	-19	Pass



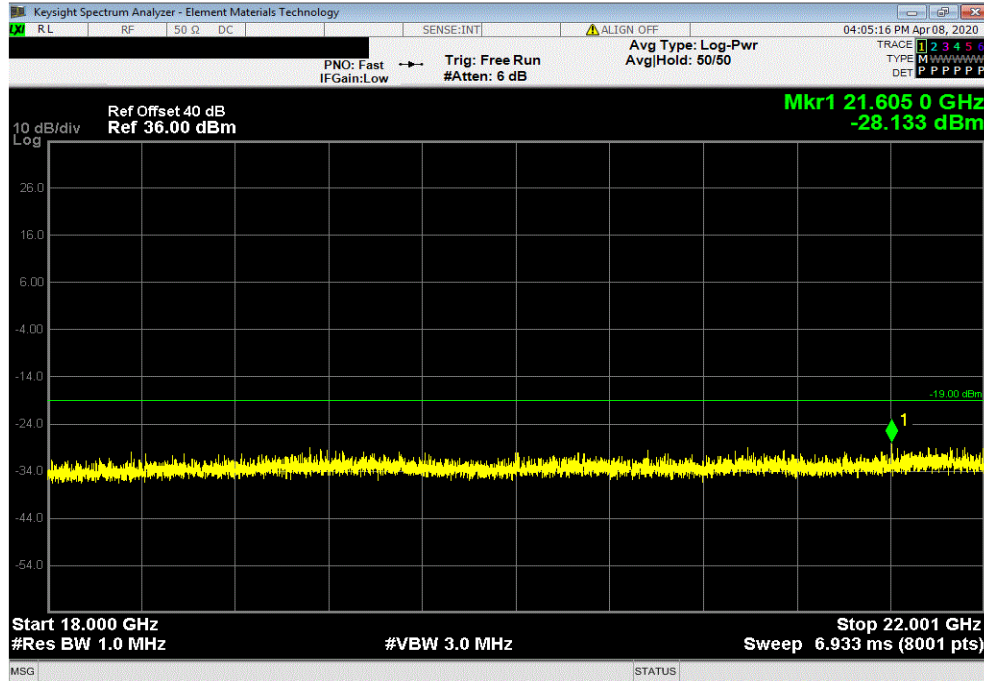
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

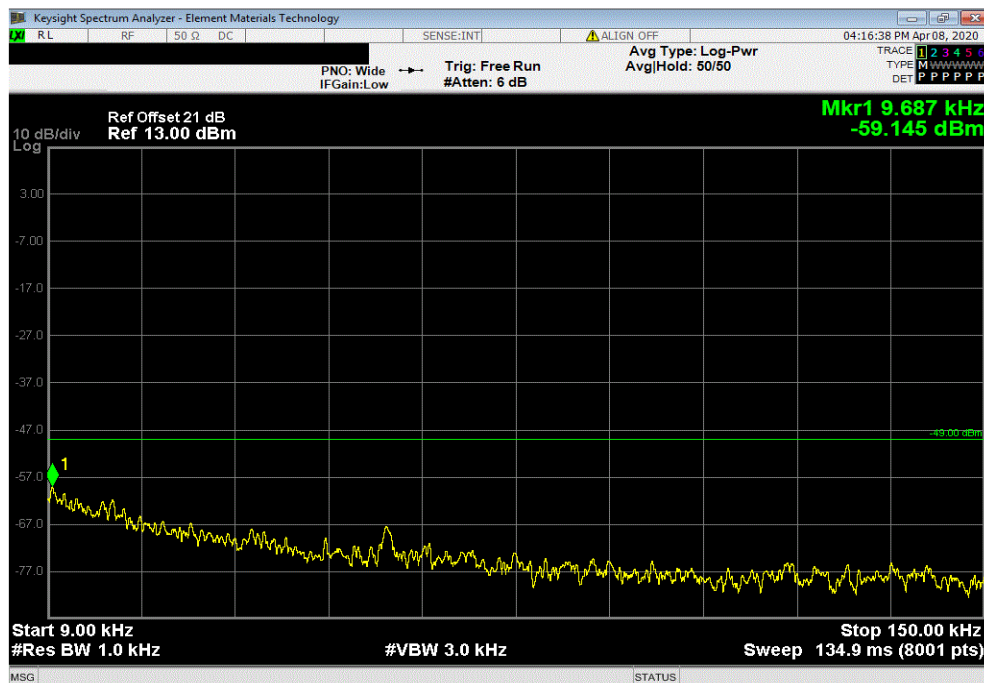
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, Range 5, 18 GHz - 22 GHz

				Value (dBm)	Limit (dBm)	Result
				-28.133	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 1, 9 kHz - 150 kHz

				Value (dBm)	Limit (dBm)	Result
				-59.145	-49	Pass



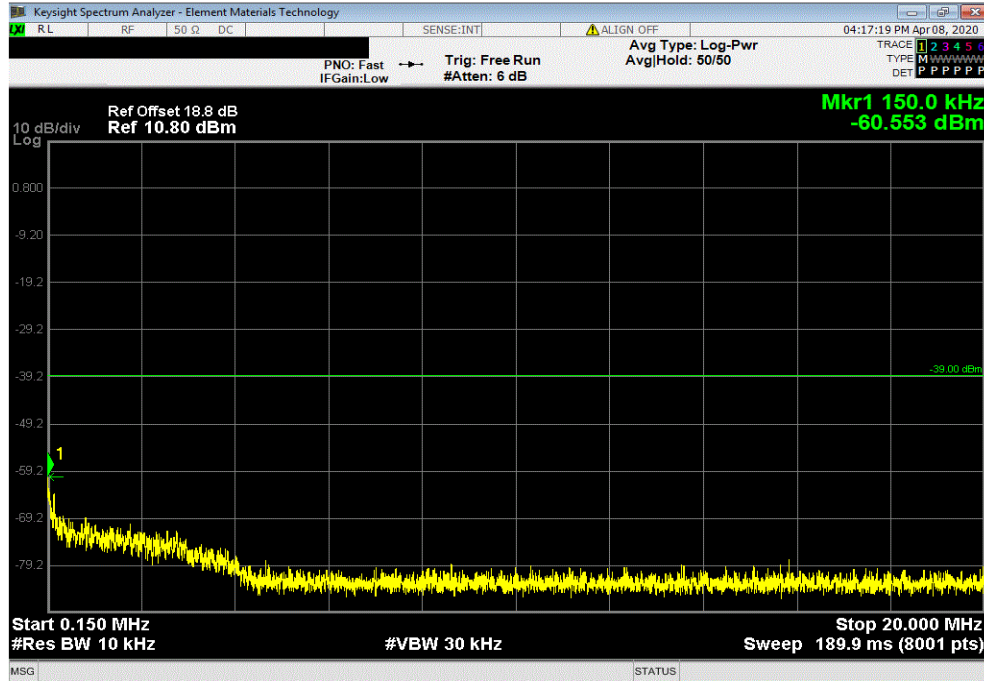
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

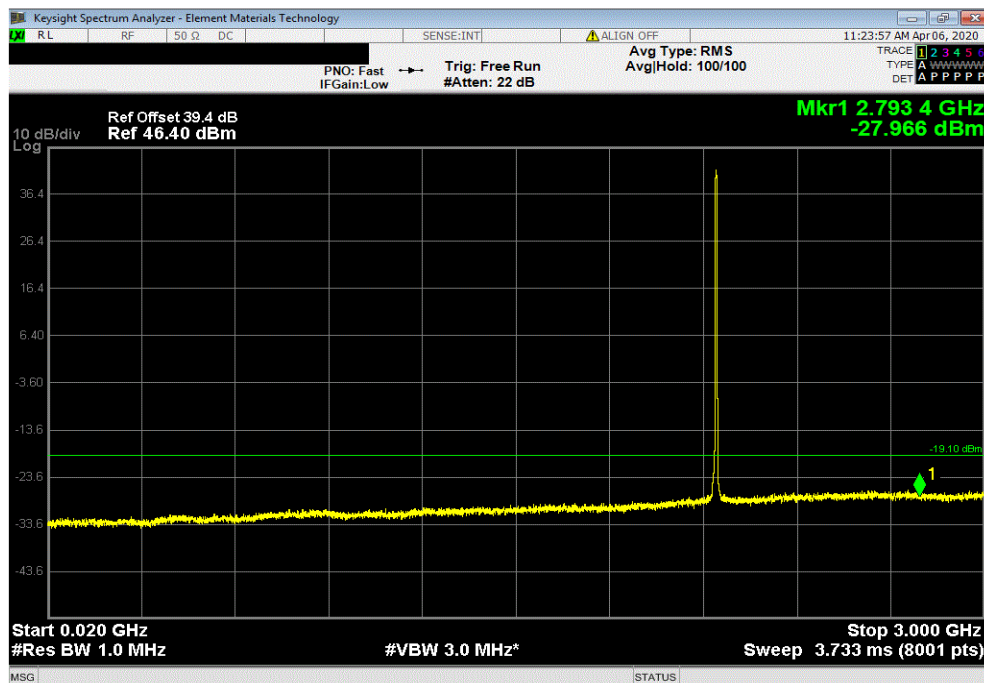
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 2, 150 kHz - 20 MHz

	Value (dBm)	Limit (dBm)	Result
	-60.553	-39	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 3, 20 MHz - 3 GHz

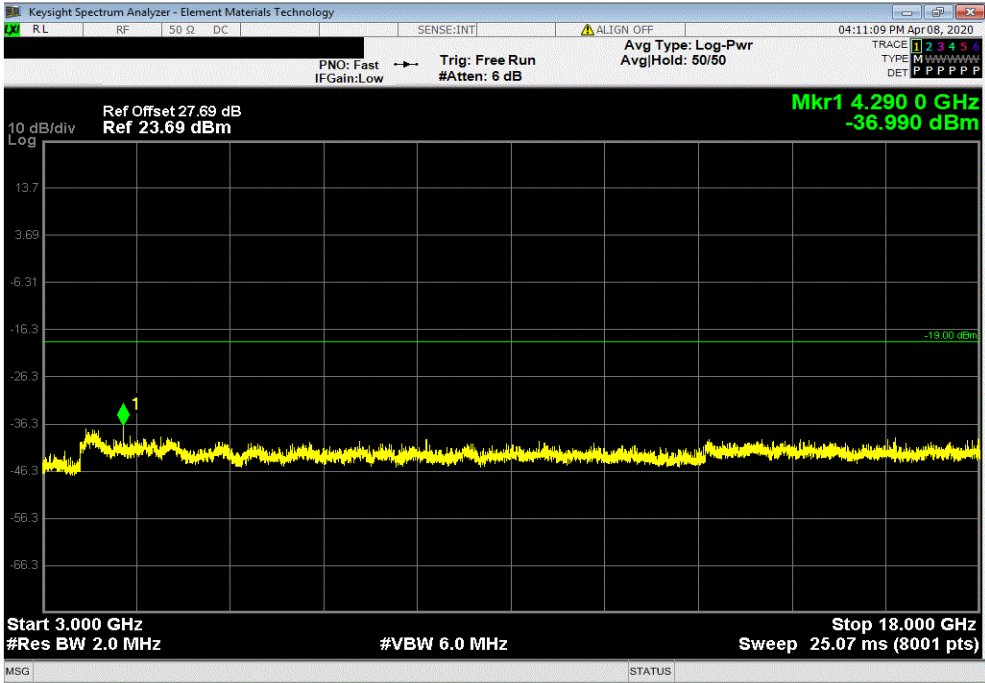
	Value (dBm)	Limit (dBm)	Result
	-27.966	-19	Pass



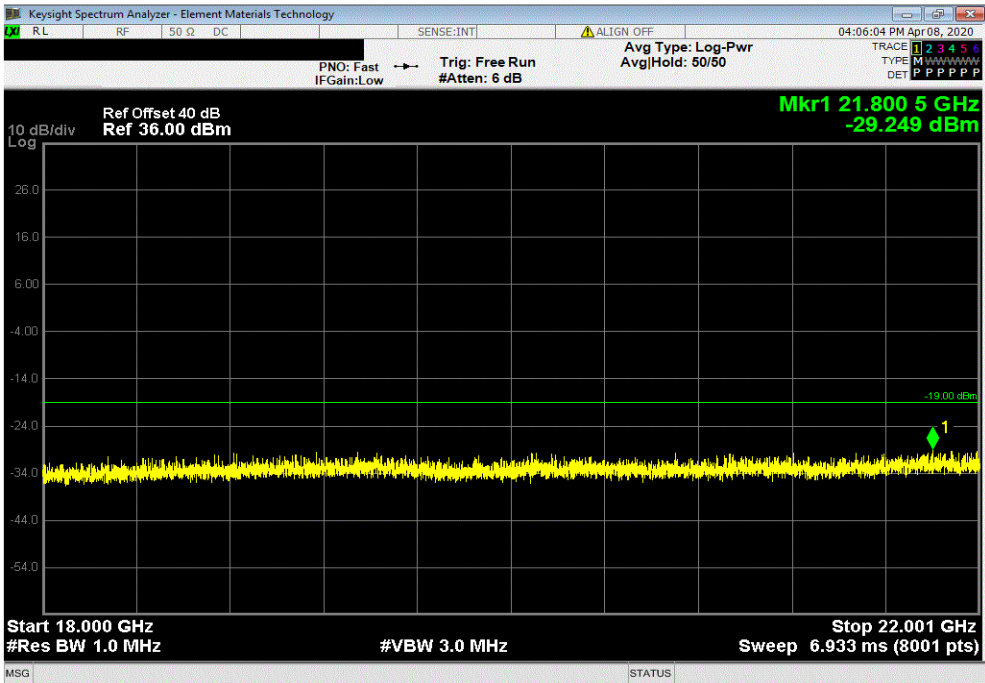
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS
BAND 66a



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 4, 3 GHz - 18 GHz						
				Value (dBm)	Limit (dBm)	Result
				-36.99	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 5, 18 GHz - 22 GHz						
				Value (dBm)	Limit (dBm)	Result
				-29.249	-19	Pass



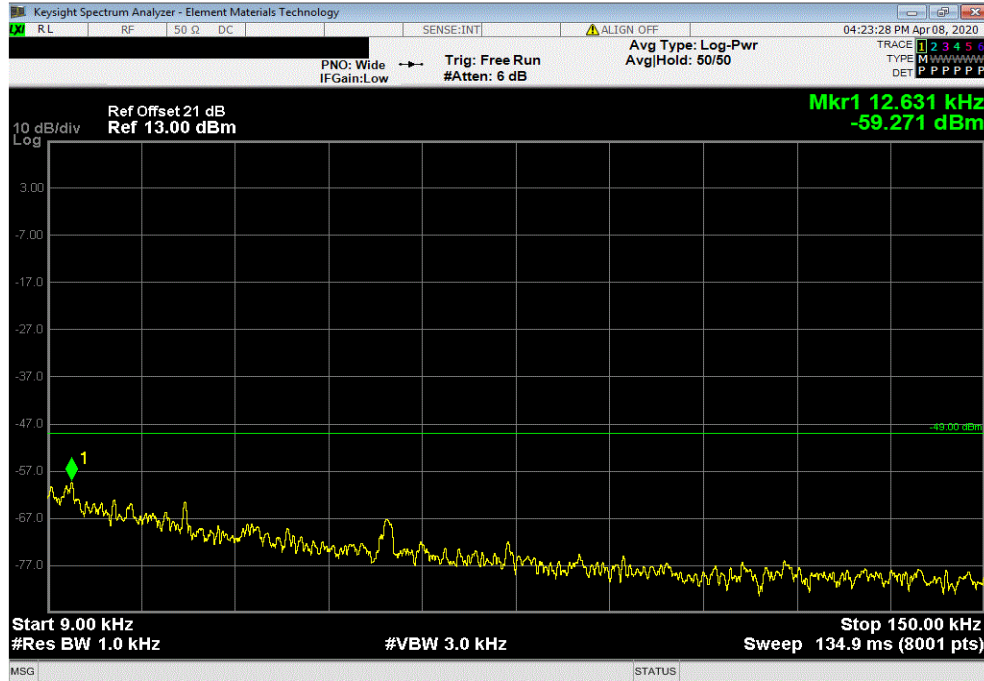
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

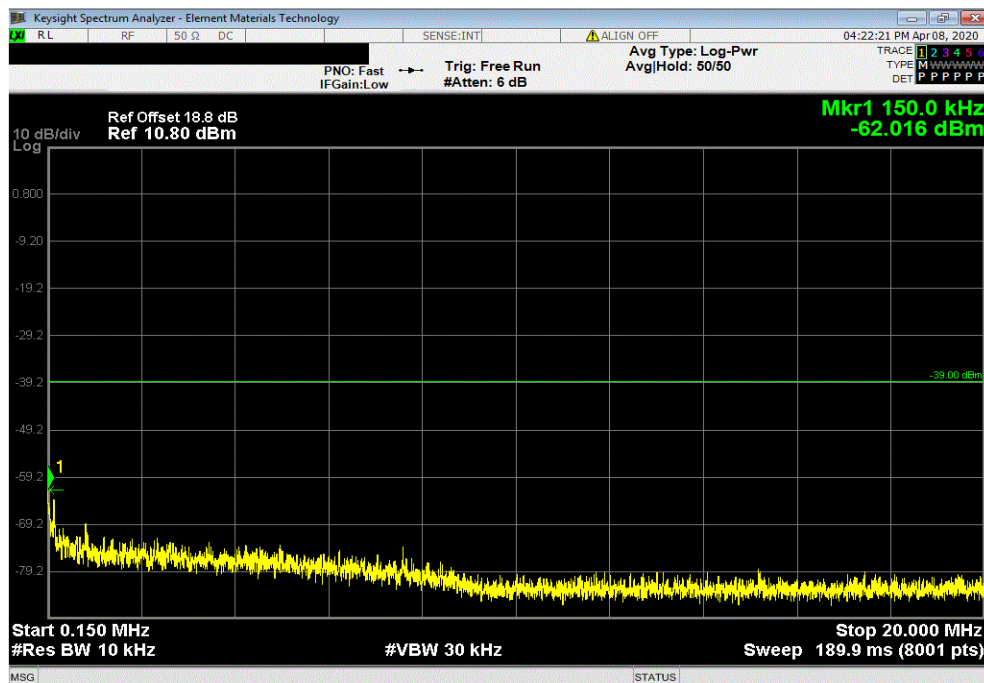
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 1, 9 kHz - 150 kHz

				Value (dBm)	Limit (dBm)	Result
				-59.271	-49	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 2, 150 kHz - 20 MHz

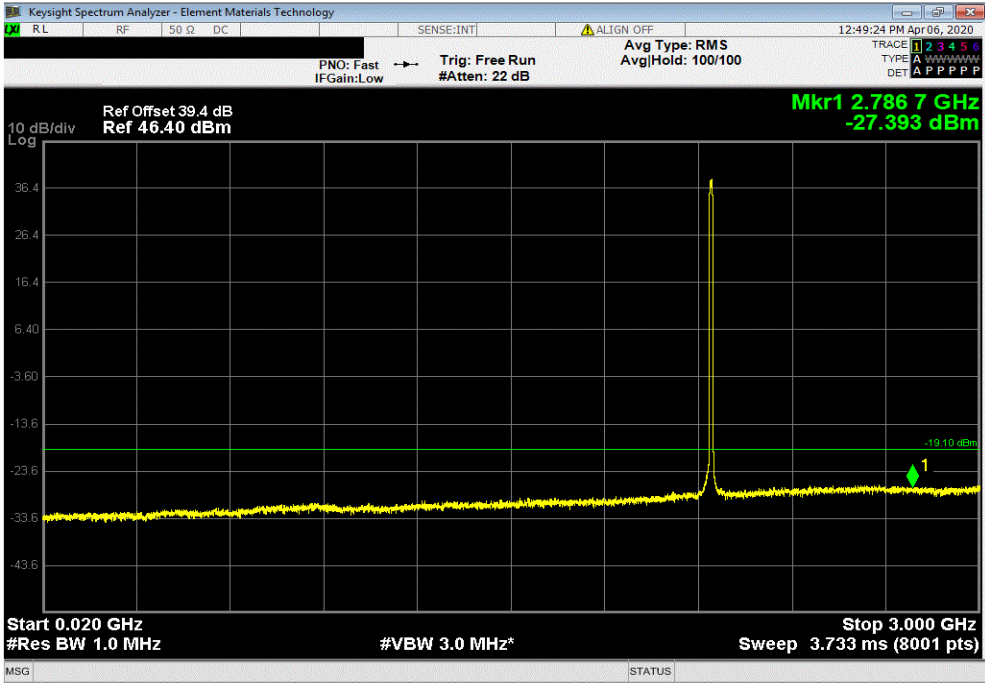
				Value (dBm)	Limit (dBm)	Result
				-62.016	-39	Pass



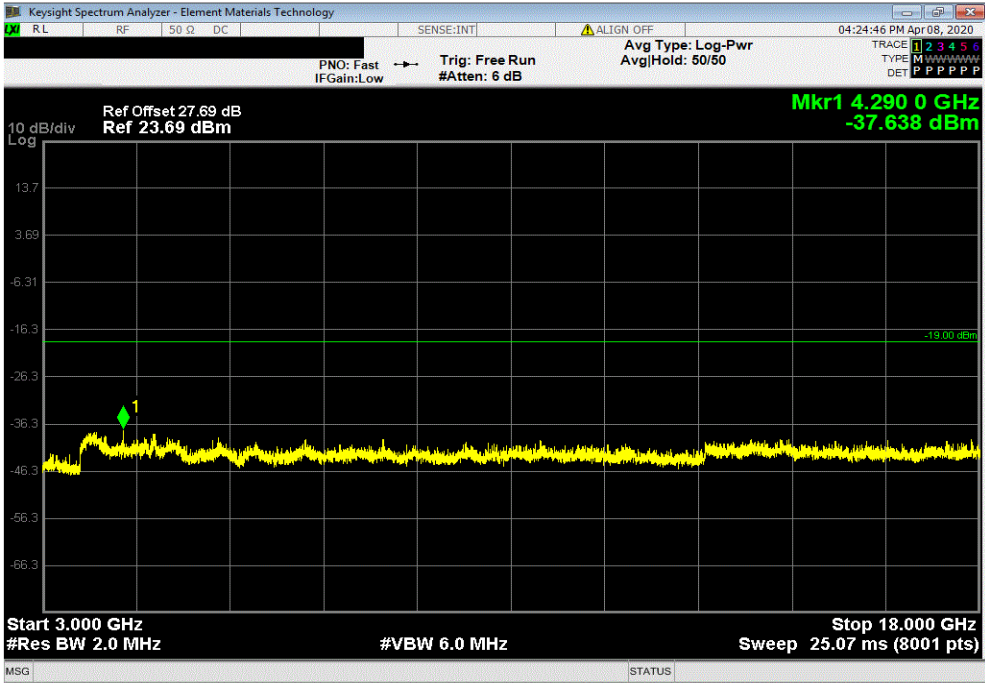
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS
BAND 66a



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 3, 20 MHz - 3 GHz						
				Value (dBm)	Limit (dBm)	Result
				-27.393	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 4, 3 GHz - 18 GHz						
				Value (dBm)	Limit (dBm)	Result
				-37.638	-19	Pass



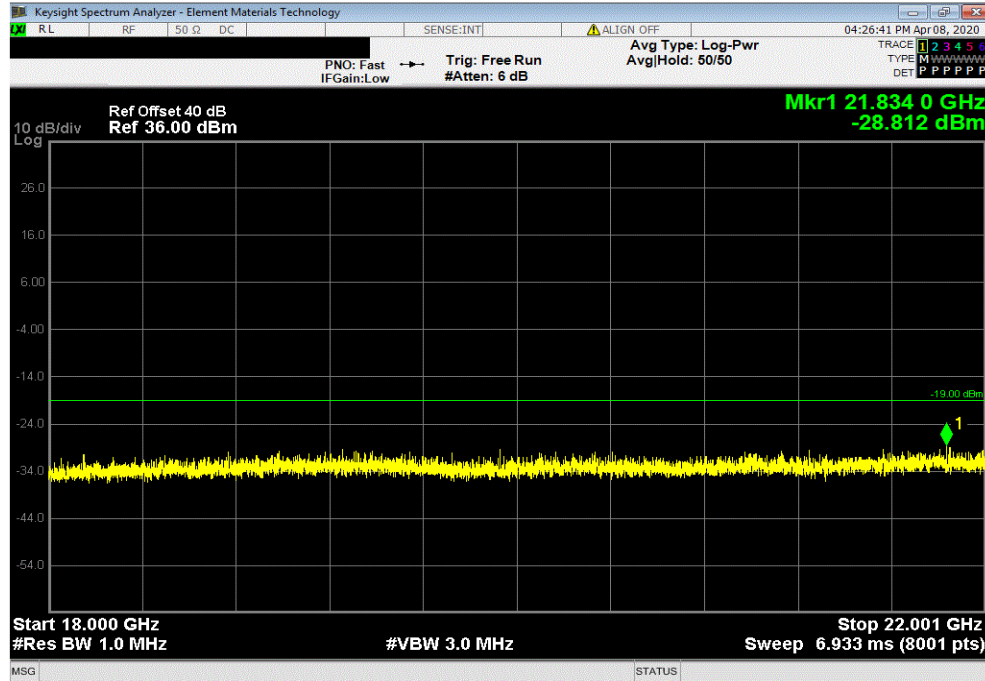
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

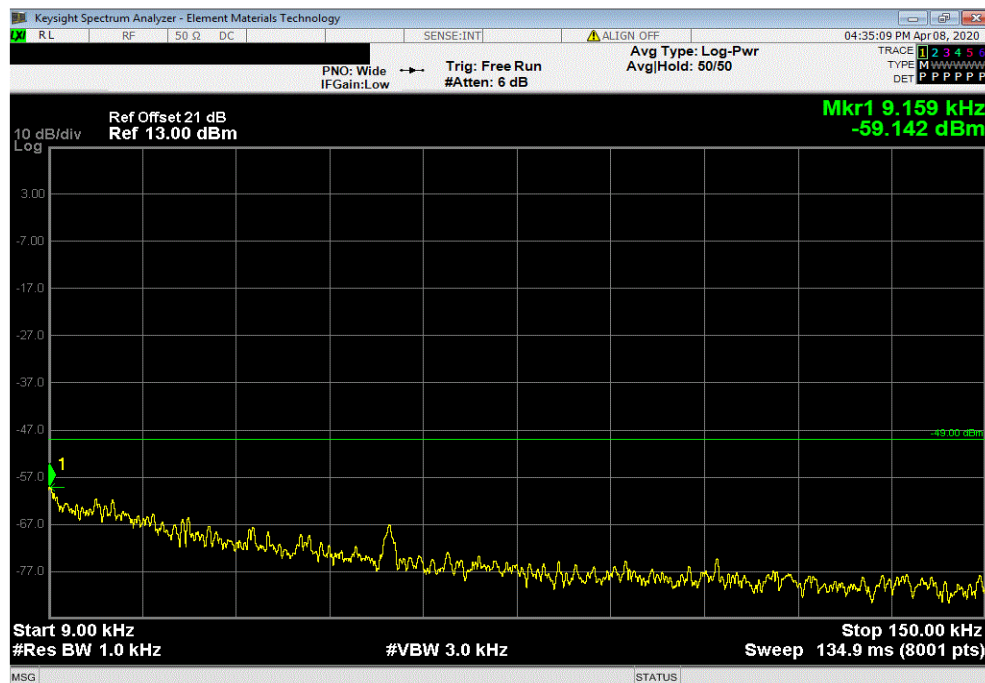
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 5, 18 GHz - 22 GHz

				Value (dBm)	Limit (dBm)	Result
				-28.812	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 1, 9 kHz - 150 kHz

				Value (dBm)	Limit (dBm)	Result
				-59.142	-49	Pass



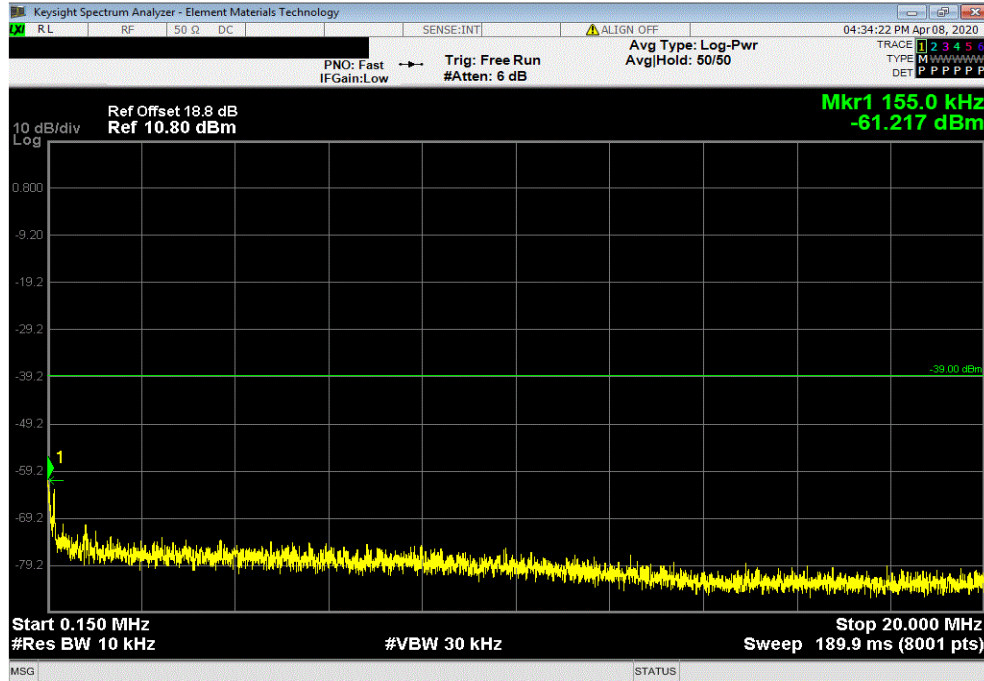
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

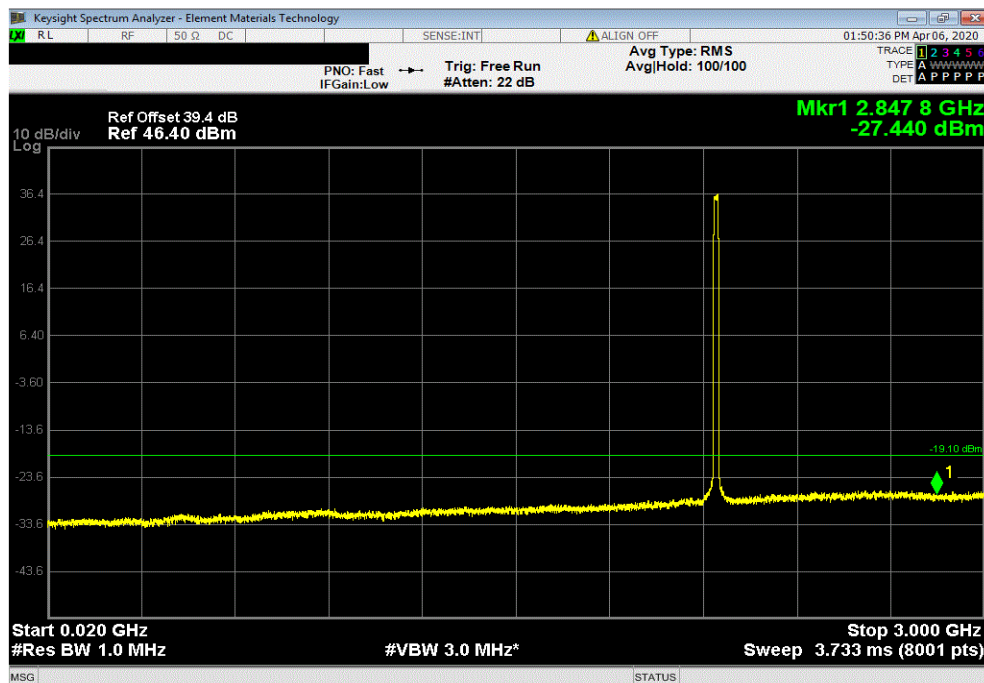
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 2, 150 kHz - 20 MHz

	Value (dBm)	Limit (dBm)	Result
	-61.217	-39	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 3, 20 MHz - 3 GHz

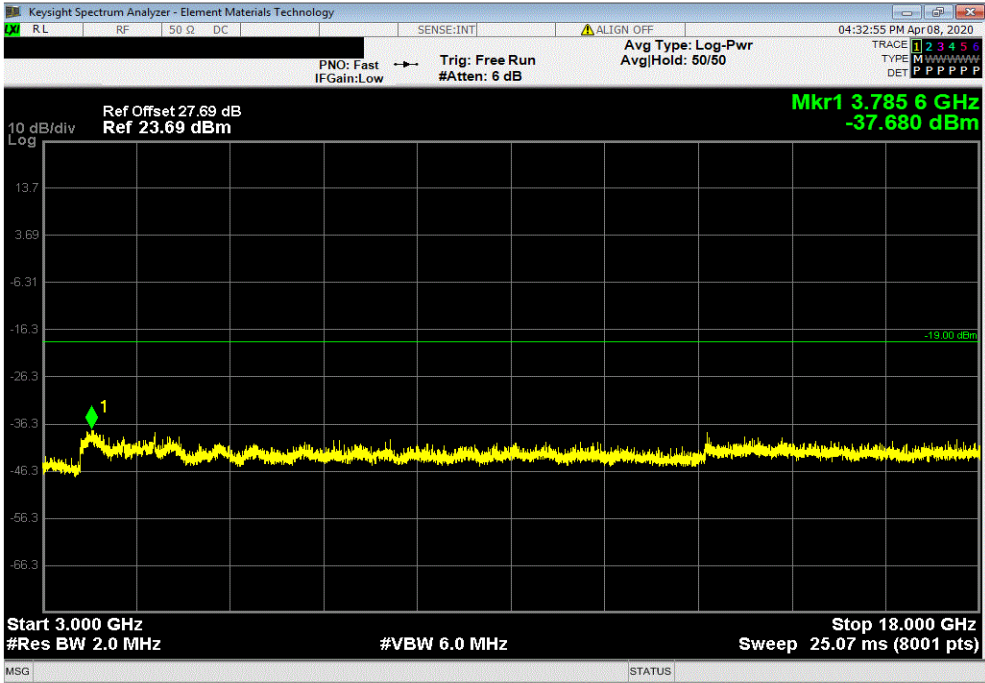
	Value (dBm)	Limit (dBm)	Result
	-27.44	-19	Pass



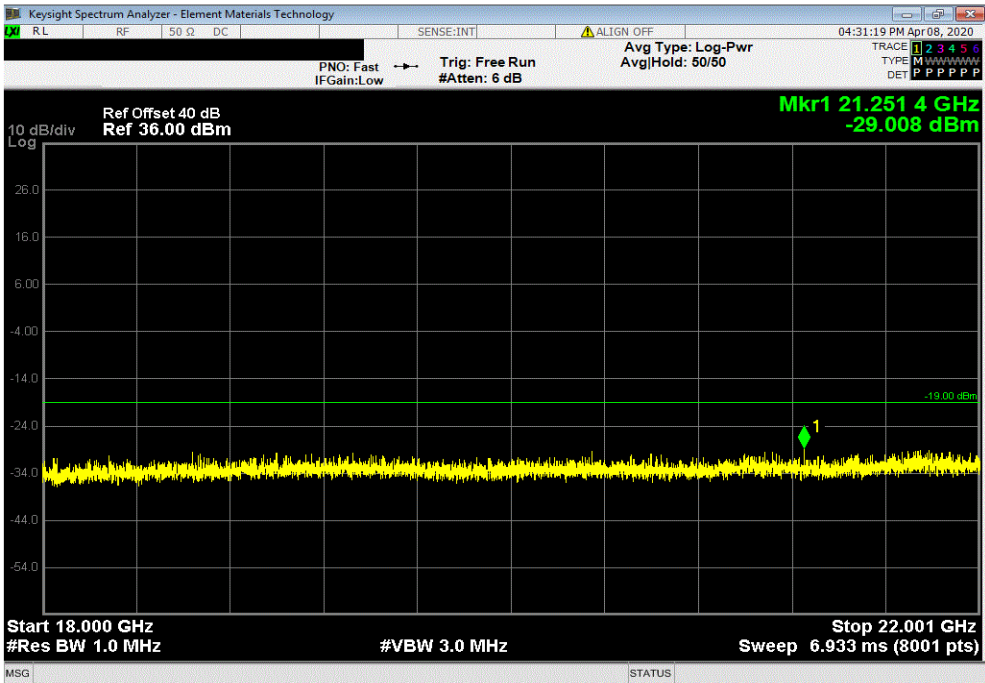
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS
BAND 66a



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 4, 3 GHz - 18 GHz						
				Value (dBm)	Limit (dBm)	Result
				-37.68	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 5, 18 GHz - 22 GHz						
				Value (dBm)	Limit (dBm)	Result
				-29.008	-19	Pass



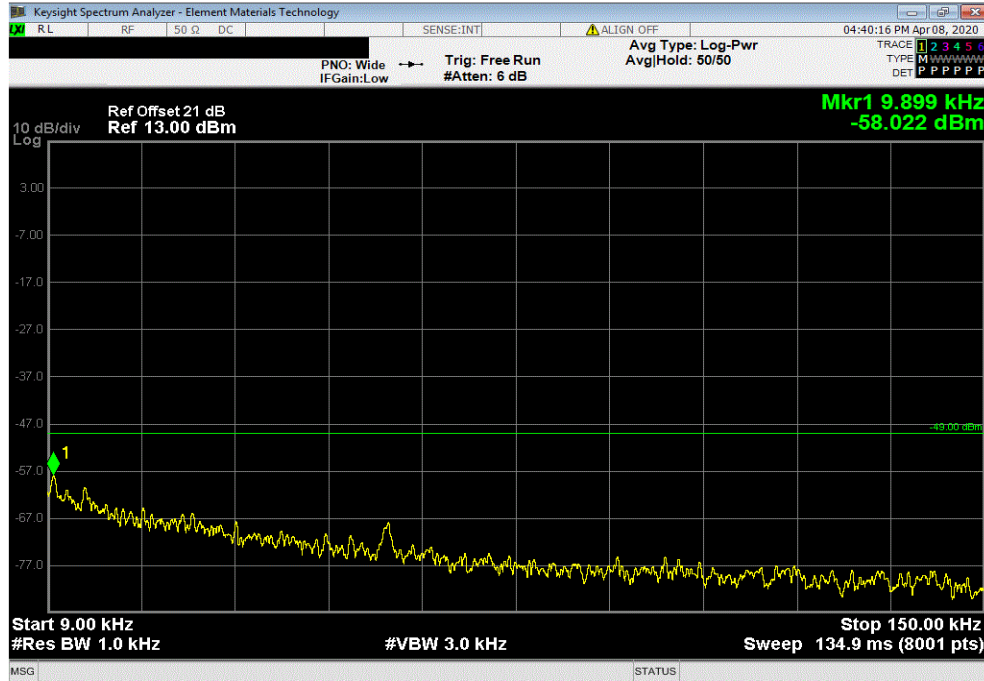
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS BAND 66a



XMI 2020.03.25.0

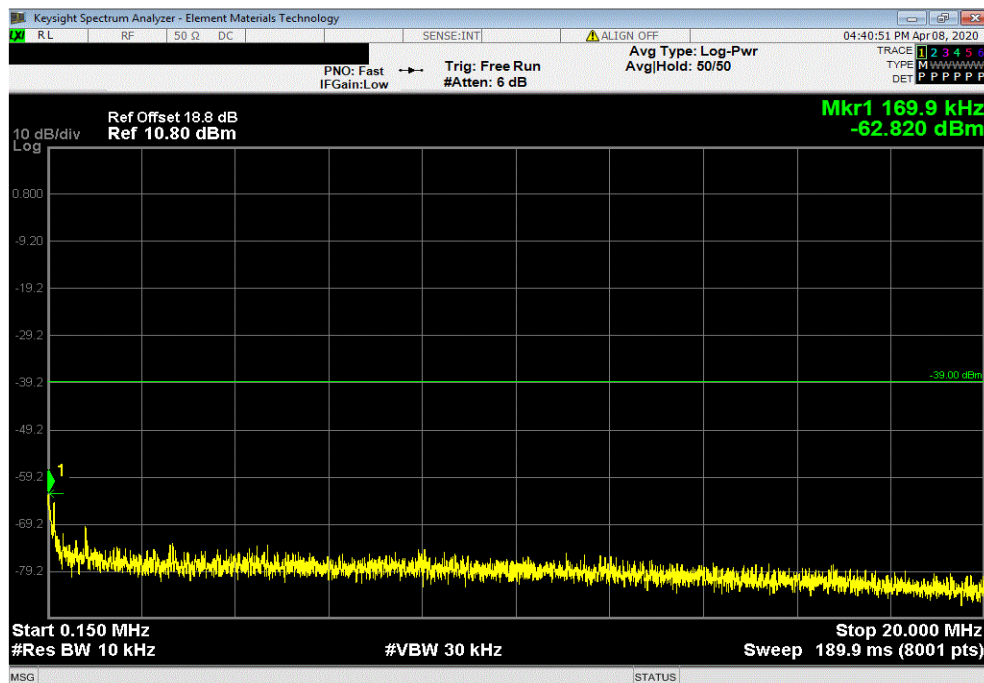
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 1, 9 kHz - 150 kHz

				Value (dBm)	Limit (dBm)	Result
				-58.022	-49	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 2, 150 kHz - 20 MHz

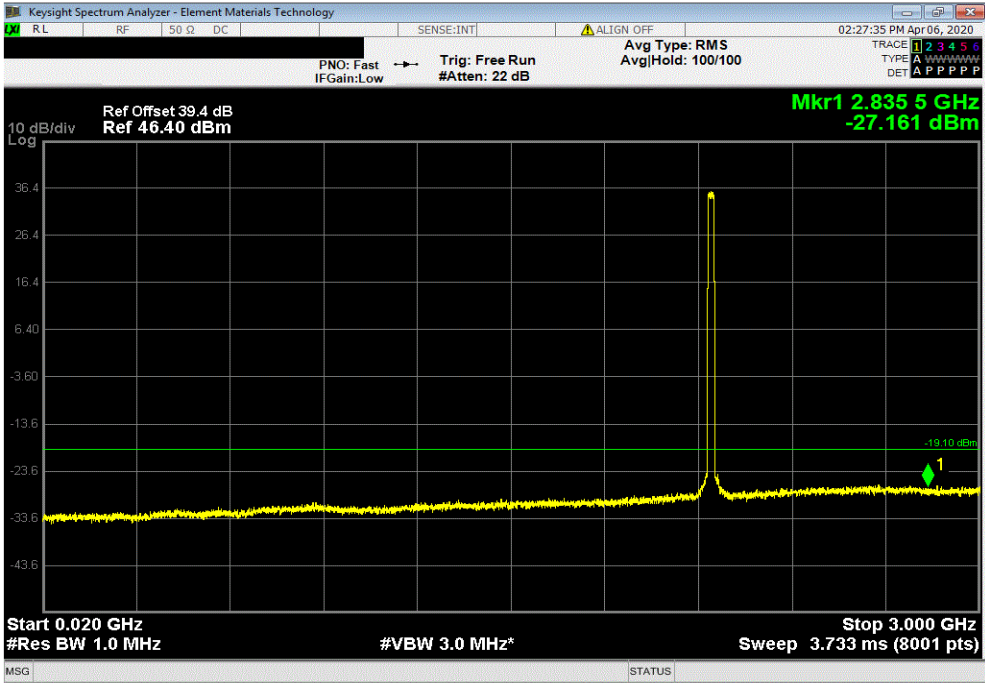
				Value (dBm)	Limit (dBm)	Result
				-62.82	-39	Pass



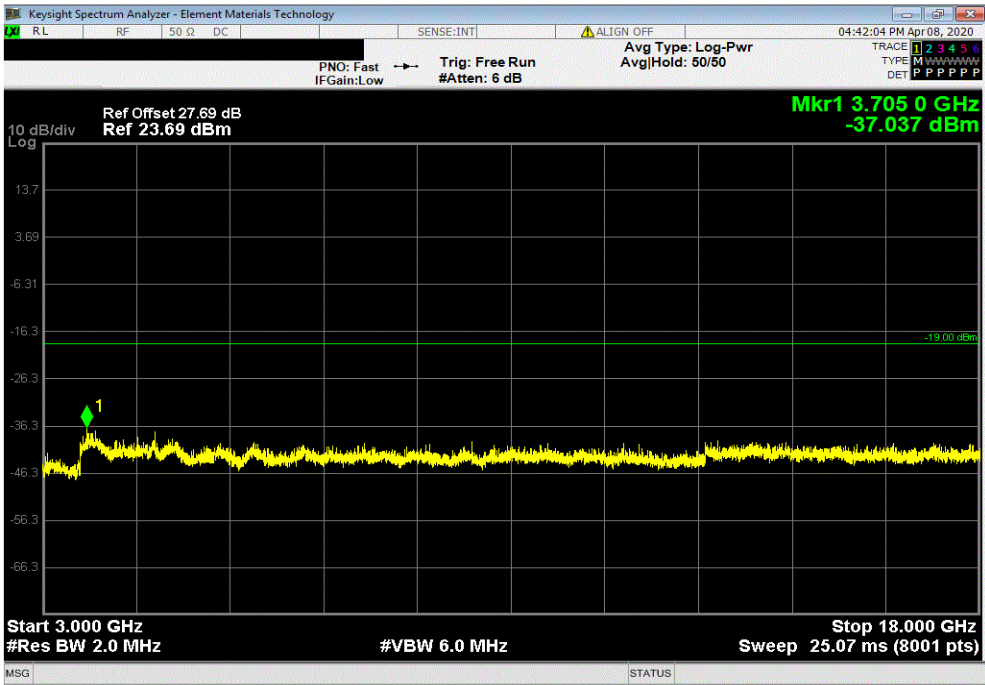
SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS
BAND 66a



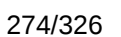
Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 3, 20 MHz - 3 GHz						
				Value (dBm)	Limit (dBm)	Result
				-27.161	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 4, 3 GHz - 18 GHz						
				Value (dBm)	Limit (dBm)	Result
				-37.037	-19	Pass



Band 66a, 2110 MHz - 2180 MHz, 5G, Port 3, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, Range 5, 18 GHz - 22 GHz							
					Value (dBm)	Limit (dBm)	Result
					-28.517	-19	Pass



PEAK TO AVERAGE POWER (PAPR) BAND

2



XMIT 2020.03.25.0

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
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21

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.

PEAK TO AVERAGE POWER (PAPR) BAND 2



MM 2020.03.25.0

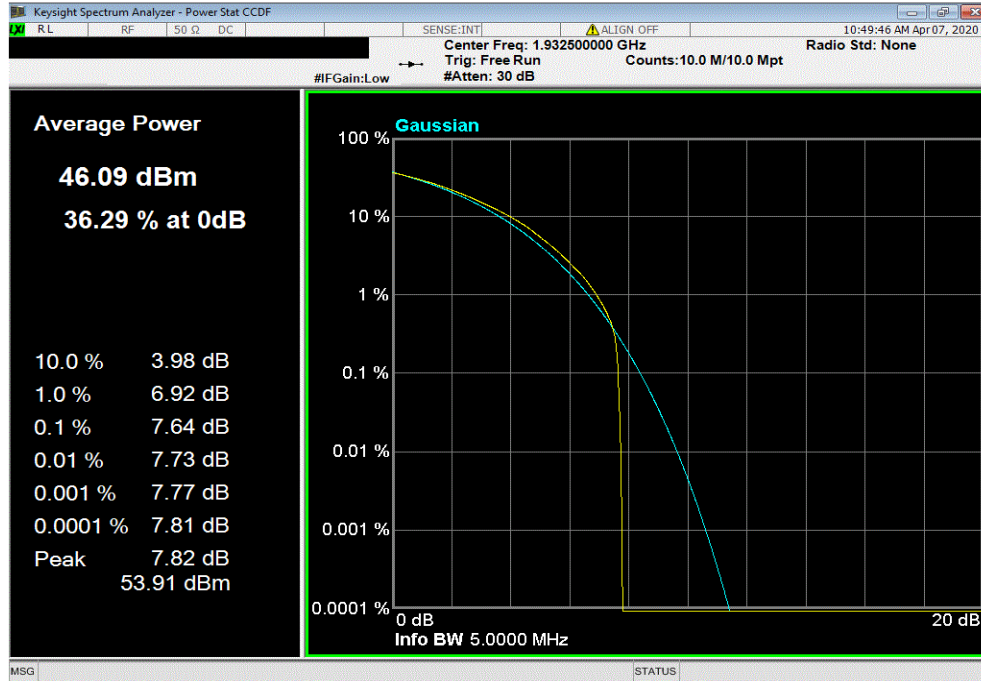
EUT:	AHFIC		Work Order:	NOKI0007	
Serial Number:	K9180317594		Date:	8-Apr-20	
Customer:	Nokia Solutions and Networks		Temperature:	22.8 °C	
Attendees:	Mitch Hill, John Rattanavong		Humidity:	48.9% RH	
Project:	None		Barometric Pres.:	1011 mbar	
Tested by:	Brandon Hobbs	Power:	54 VDC	Job Site:	TX03
TEST SPECIFICATIONS		Test Method			
FCC 24E:2020		ANSI C63.26:2015			
RSS-133:2018		RSS-133:2018			
COMMENTS					
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. The hottest port was used for testing. The worst case port was determined in the original client test report. The carrier power was set to maximum for all testing.					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	6	Signature 			
			PAPR Value (dB)	PAPR Limit (dB)	Results
Band 2, 1930 MHz - 1990 MHz, 5G					
Port 7					
5 MHz Bandwidth					
QPSK Modulation					
Low Channel, 1932.5 MHz			7.64	13	Pass
Mid Channel, 1960 MHz			7.65	13	Pass
High Channel, 1987.5 MHz			7.65	13	Pass
16-QAM Modulation					
Low Channel, 1932.5 MHz			7.64	13	Pass
Mid Channel, 1960 MHz			7.64	13	Pass
High Channel, 1987.5 MHz			7.64	13	Pass
64-QAM Modulation					
Low Channel, 1932.5 MHz			7.72	13	Pass
Mid Channel, 1960 MHz			7.70	13	Pass
High Channel, 1987.5 MHz			7.74	13	Pass
256-QAM Modulation					
Low Channel, 1932.5 MHz			7.68	13	Pass
Mid Channel, 1960 MHz			7.68	13	Pass
High Channel, 1987.5 MHz			7.70	13	Pass
10 MHz Bandwidth					
QPSK Modulation					
Low Channel, 1935 MHz			7.74	13	Pass
Mid Channel, 1960 MHz			7.73	13	Pass
High Channel, 1985 MHz			7.73	13	Pass
16-QAM Modulation					
Low Channel, 1935 MHz			7.78	13	Pass
Mid Channel, 1960 MHz			7.73	13	Pass
High Channel, 1985 MHz			7.70	13	Pass
64-QAM Modulation					
Low Channel, 1935 MHz			7.74	13	Pass
Mid Channel, 1960 MHz			7.72	13	Pass
High Channel, 1985 MHz			7.74	13	Pass
256-QAM Modulation					
Low Channel, 1935 MHz			7.80	13	Pass
Mid Channel, 1960 MHz			7.75	13	Pass
High Channel, 1985 MHz			7.74	13	Pass
15 MHz Bandwidth					
QPSK Modulation					
Low Channel, 1937.5 MHz			7.82	13	Pass
Mid Channel, 1960 MHz			7.71	13	Pass
High Channel, 1982.5 MHz			7.75	13	Pass
16-QAM Modulation					
Low Channel, 1937.5 MHz			7.82	13	Pass
Mid Channel, 1960 MHz			7.71	13	Pass
High Channel, 1982.5 MHz			7.73	13	Pass
64-QAM Modulation					
Low Channel, 1937.5 MHz			7.75	13	Pass
Mid Channel, 1960 MHz			7.68	13	Pass
High Channel, 1982.5 MHz			7.74	13	Pass
256-QAM Modulation					
Low Channel, 1937.5 MHz			7.80	13	Pass
Mid Channel, 1960 MHz			7.72	13	Pass
High Channel, 1982.5 MHz			7.76	13	Pass
20 MHz Bandwidth					
QPSK Modulation					
Low Channel, 1940 MHz			7.78	13	Pass
Mid Channel, 1960 MHz			7.64	13	Pass
High Channel, 1980 MHz			7.68	13	Pass
16-QAM Modulation					
Low Channel, 1940 MHz			7.81	13	Pass
Mid Channel, 1960 MHz			7.65	13	Pass
High Channel, 1980 MHz			7.71	13	Pass
64-QAM Modulation					
Low Channel, 1940 MHz			7.77	13	Pass
Mid Channel, 1960 MHz			7.62	13	Pass
High Channel, 1980 MHz			7.65	13	Pass
256-QAM Modulation					
Low Channel, 1940 MHz			7.82	13	Pass
Mid Channel, 1960 MHz			7.66	13	Pass
High Channel, 1980 MHz			7.70	13	Pass

PEAK TO AVERAGE POWER (PAPR) BAND 2

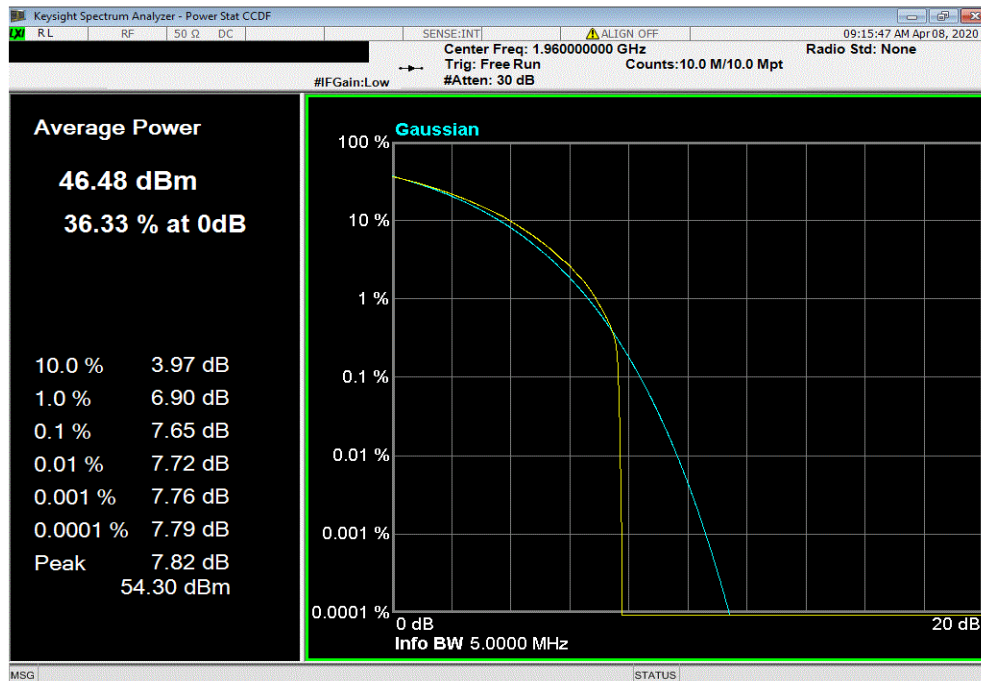


XMI 2020.03.25.0

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, QPSK Modulation , Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.64	13	Pass



Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.65	13	Pass

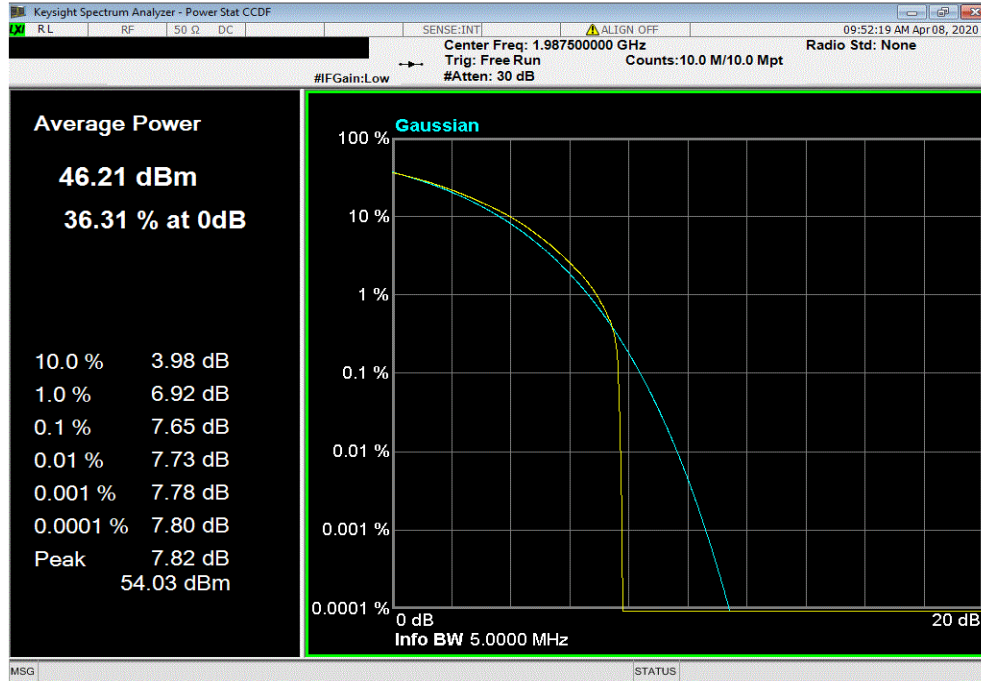


PEAK TO AVERAGE POWER (PAPR) BAND 2

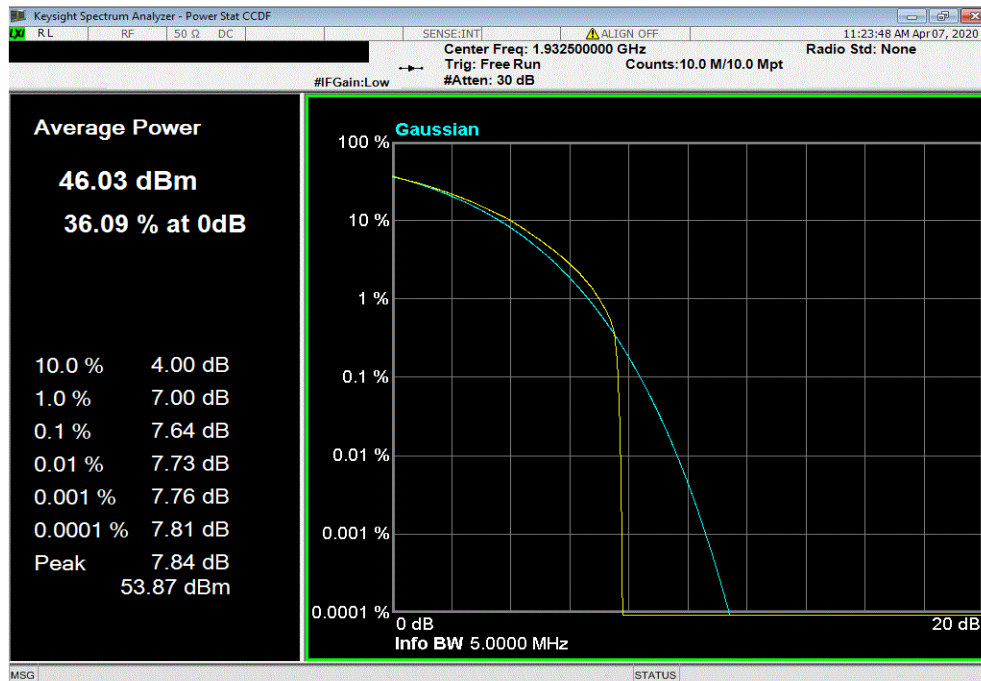


XMI 2020.03.25.0

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, QPSK Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.65	13	Pass

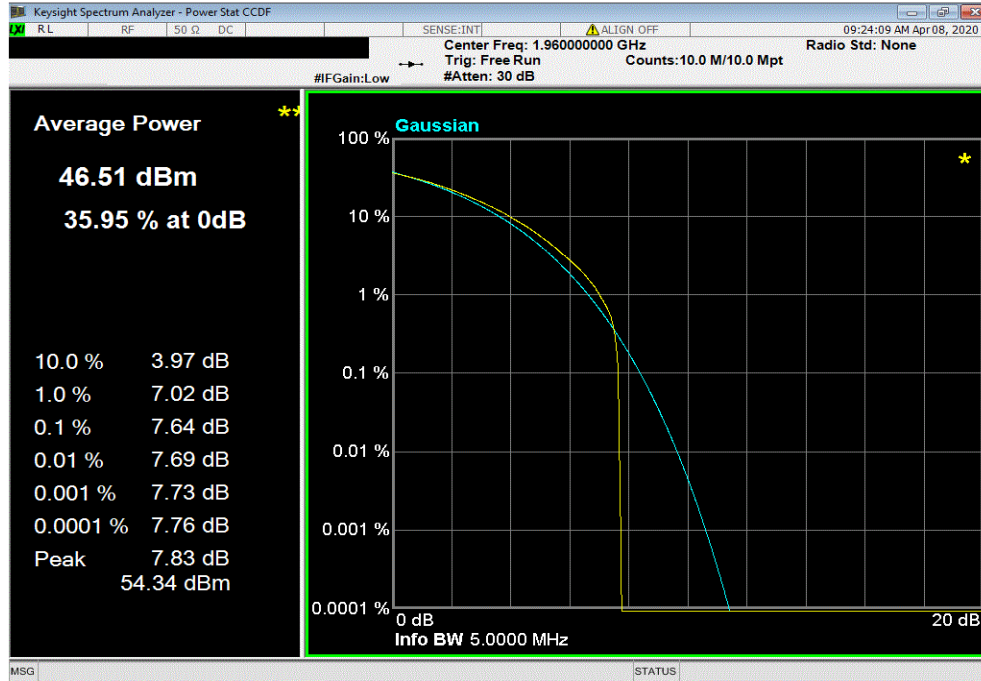


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.64	13	Pass

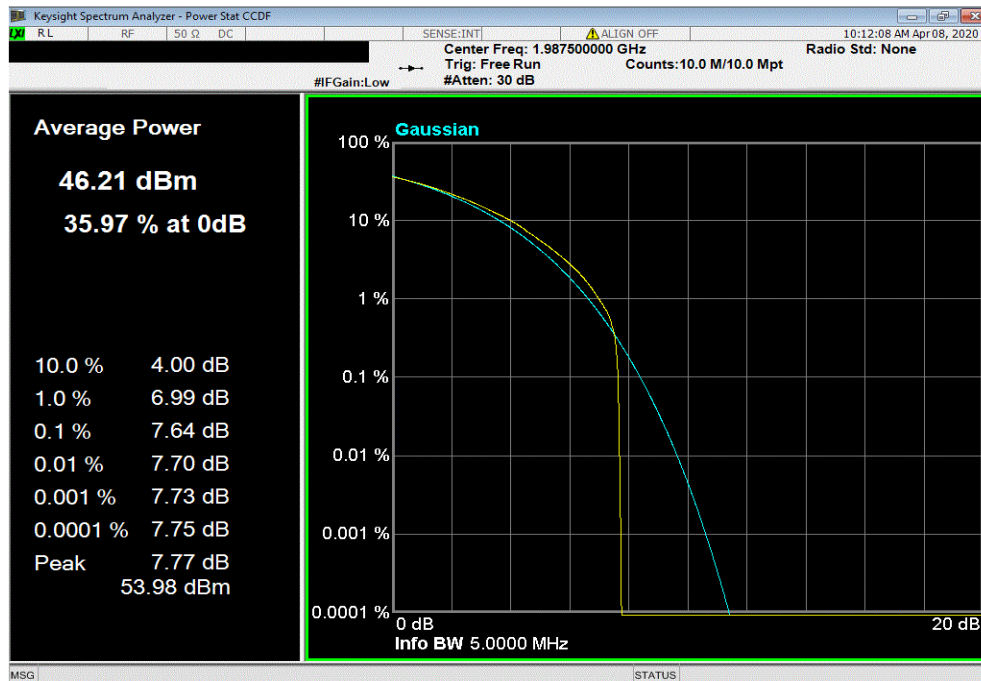


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.64	13	Pass



Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 16-QAM Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.64	13	Pass

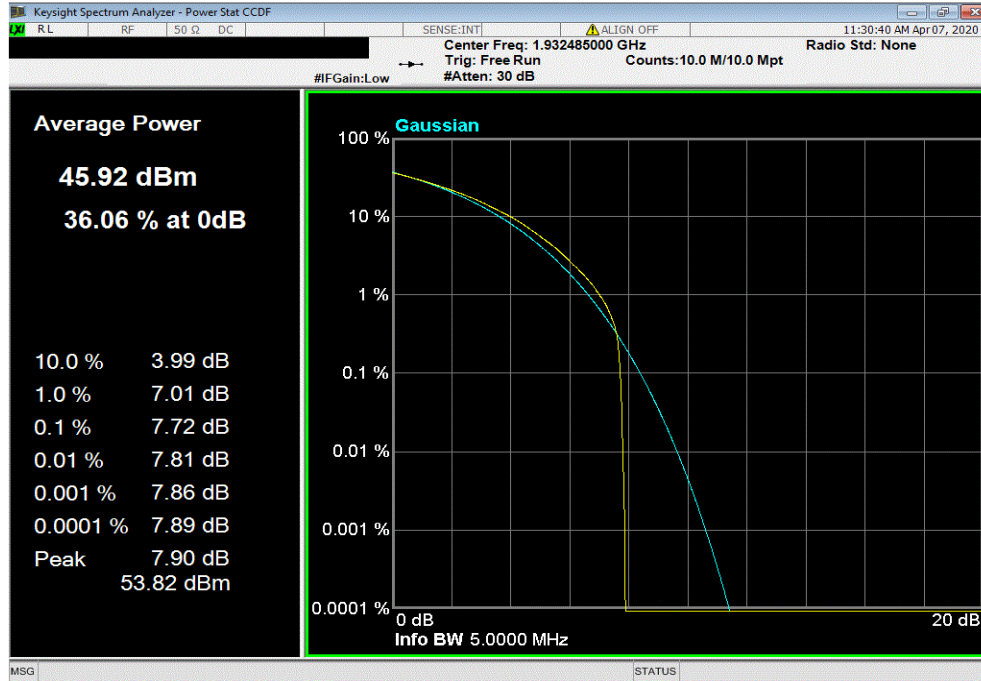


PEAK TO AVERAGE POWER (PAPR) BAND 2

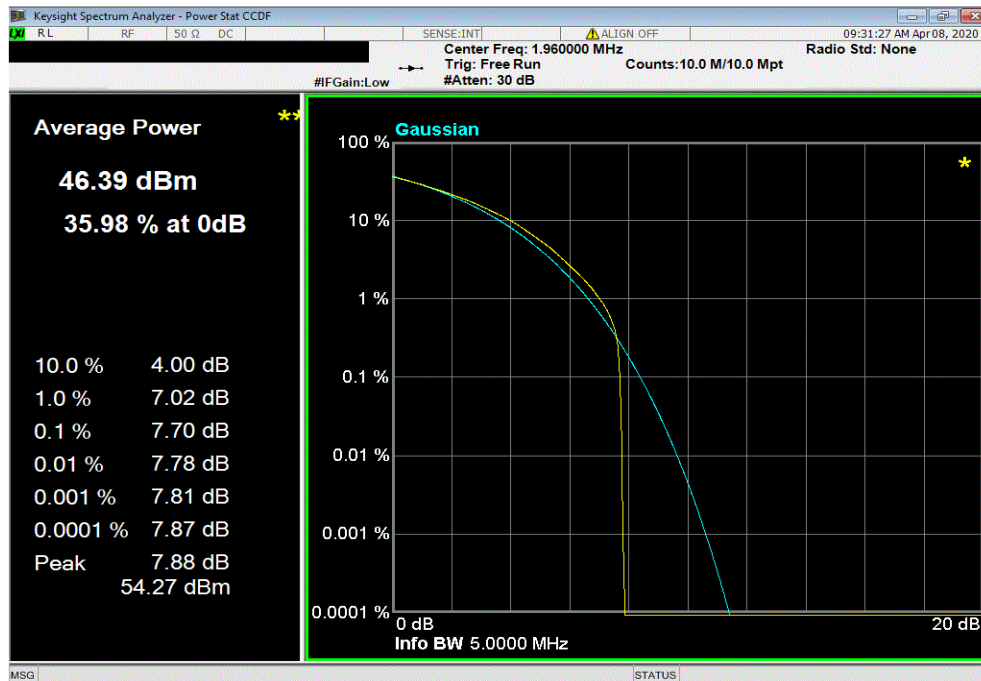


XMI 2020.03.25.0

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1932.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.72	13	Pass			

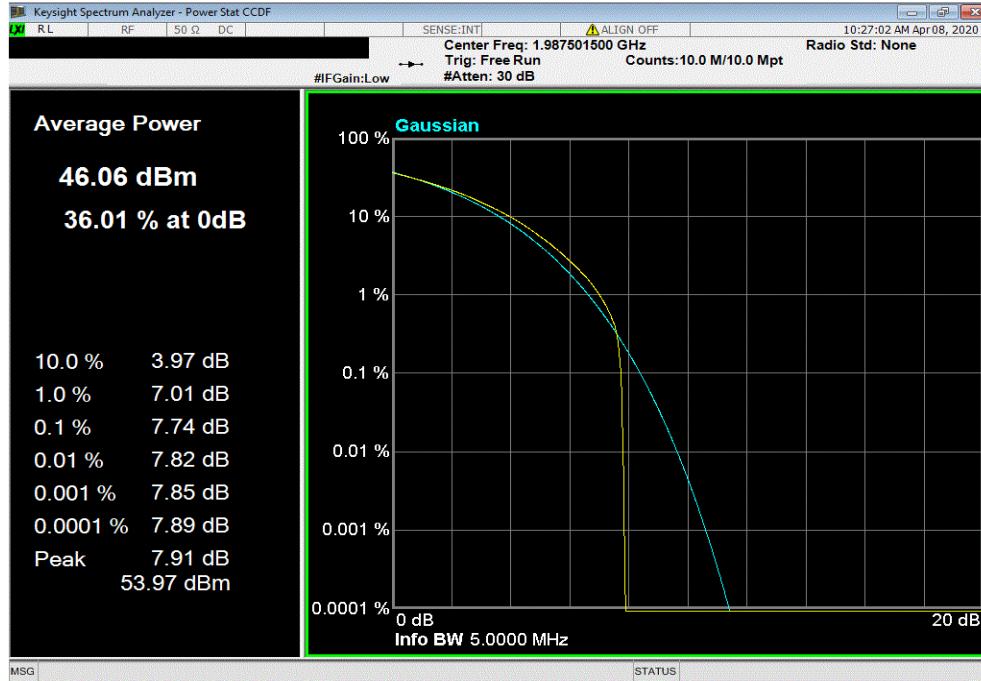


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.7	13	Pass			

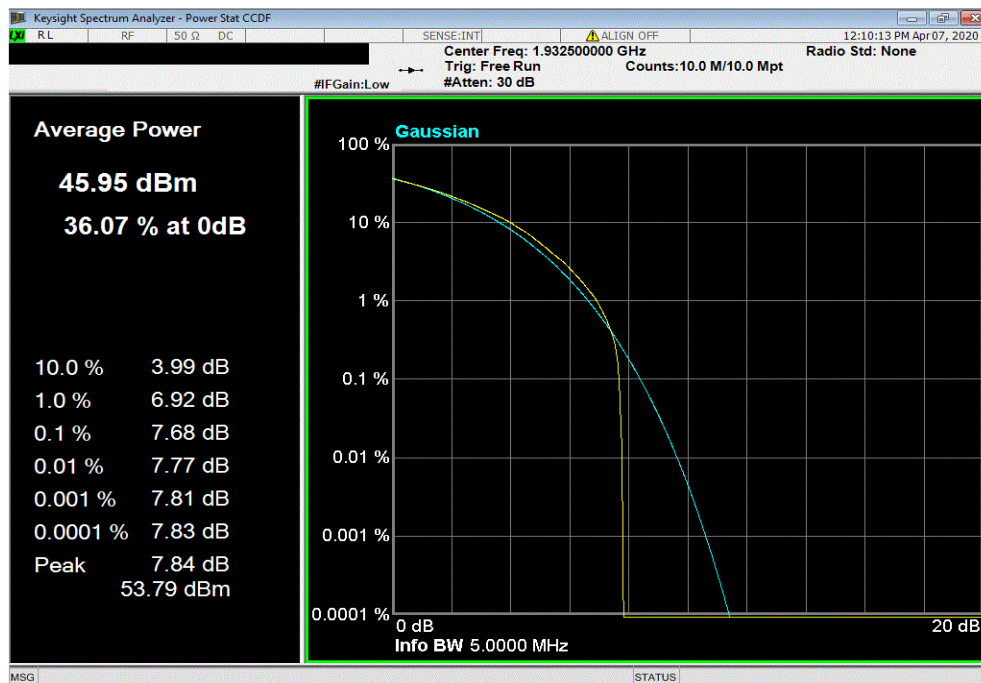


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 64-QAM Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.74	13	Pass

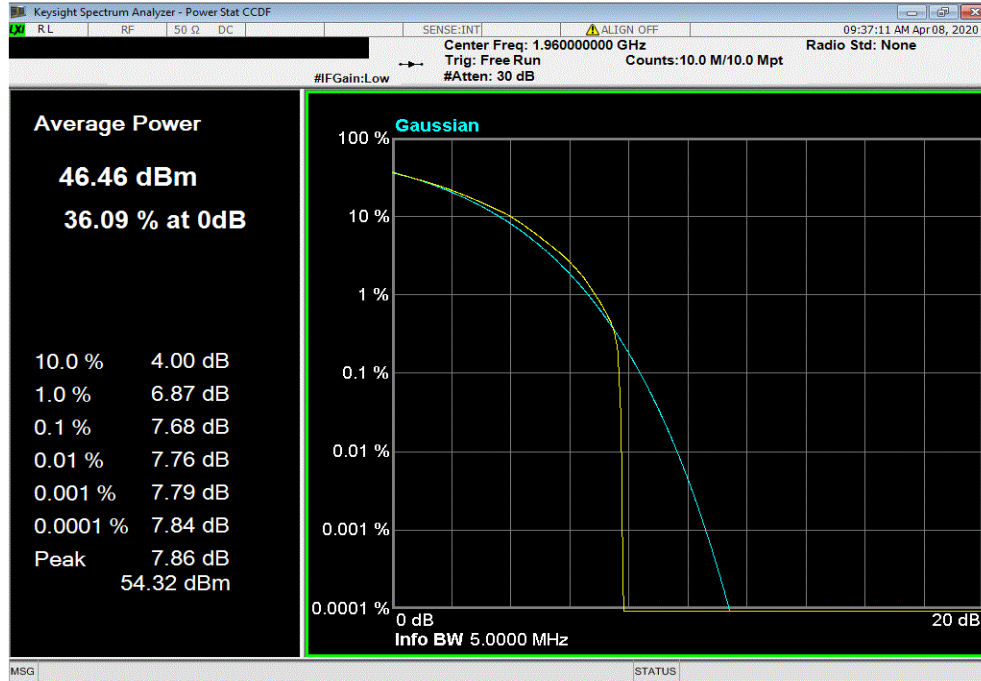


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1932.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.68	13	Pass

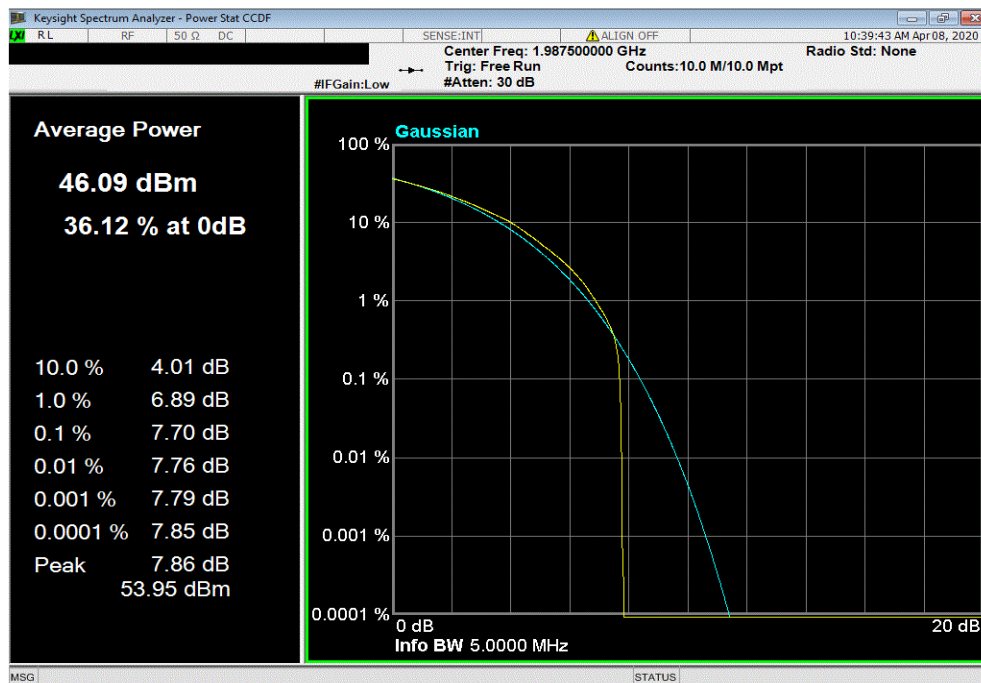


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.68	13	Pass

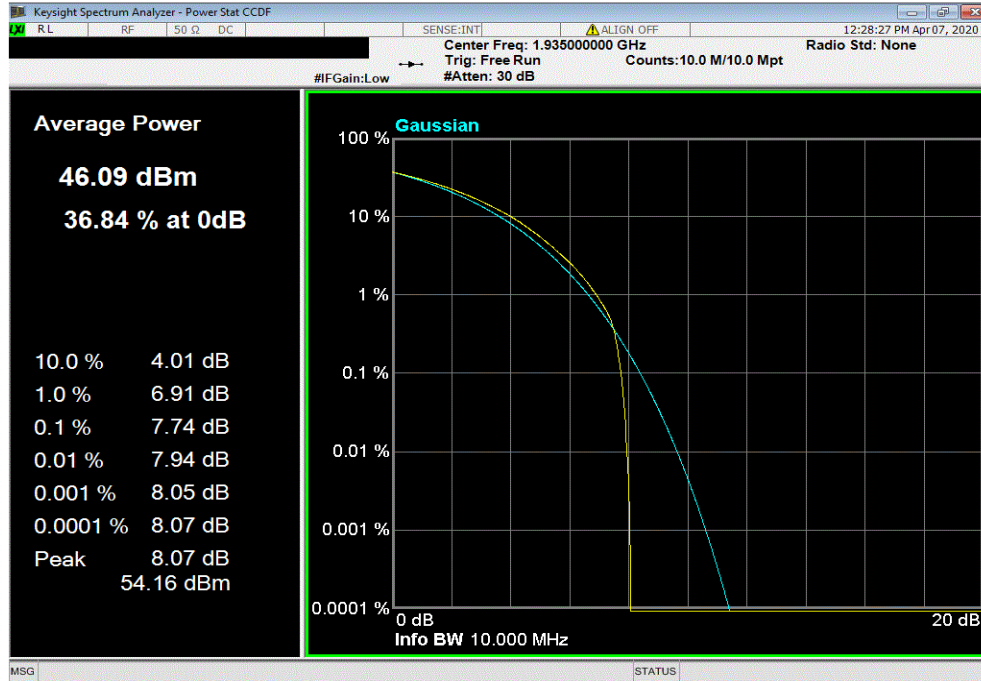


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 5 MHz Bandwidth, 256-QAM Modulation, High Channel, 1987.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.7	13	Pass

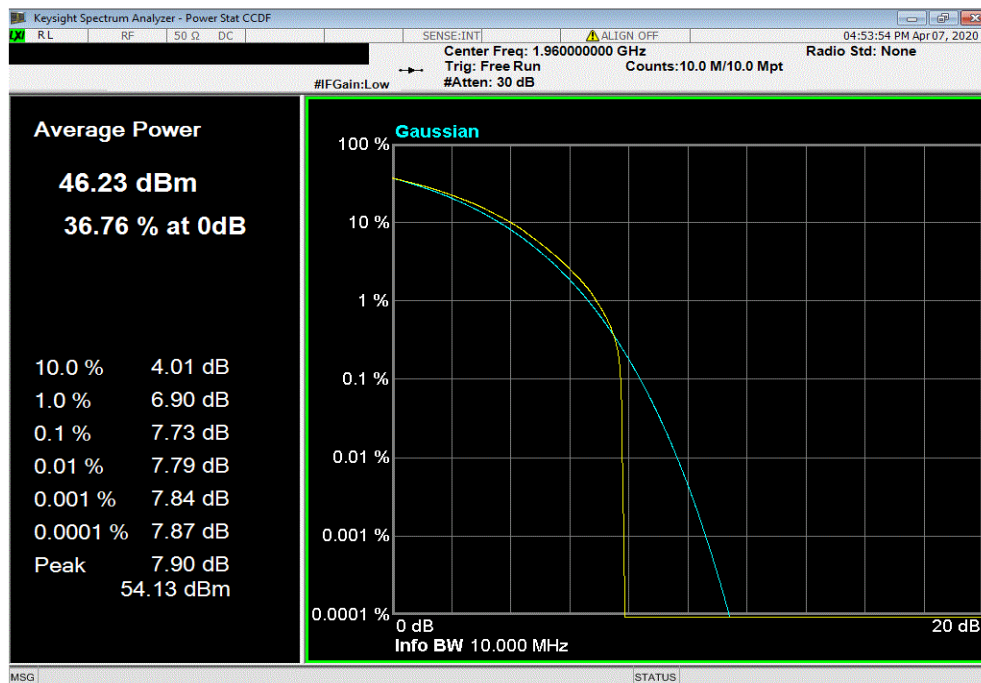


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, QPSK Modulation , Low Channel, 1935 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.74	13	Pass			

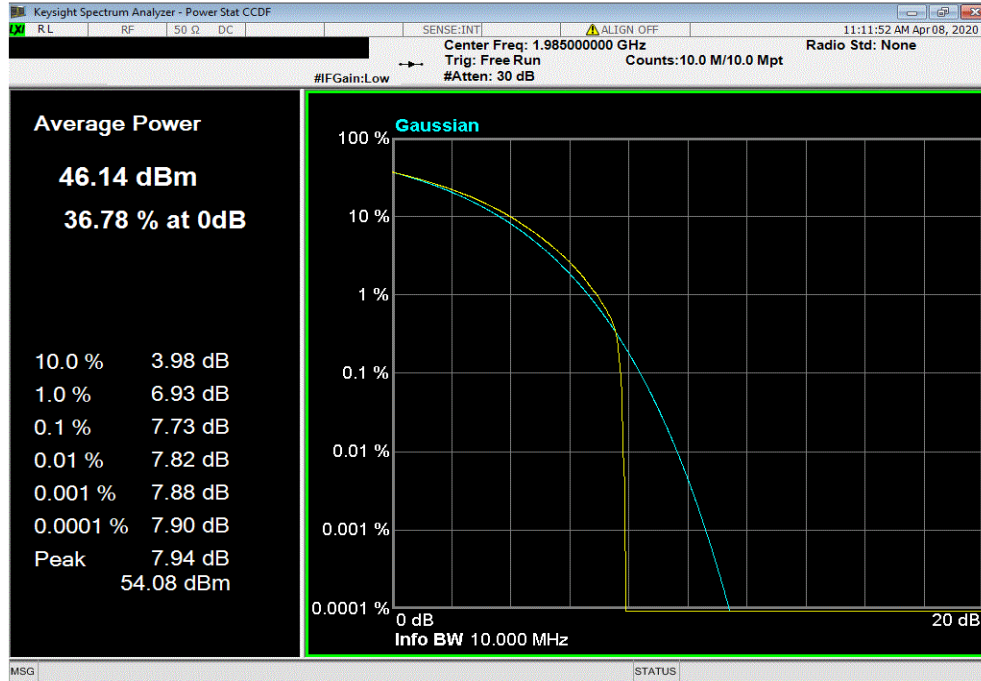


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.73	13	Pass			

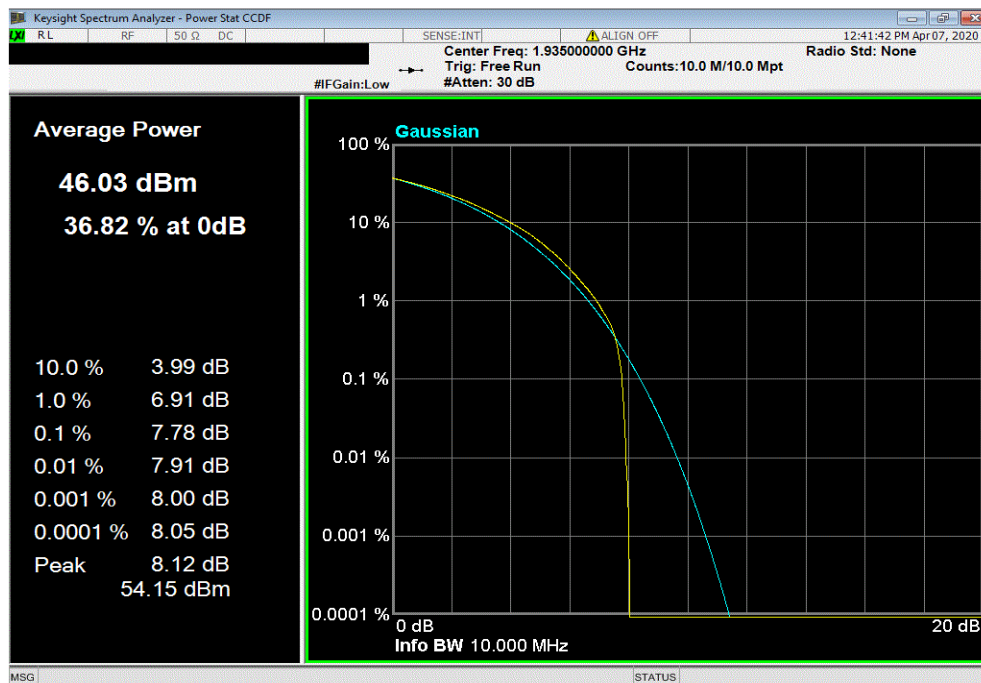


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, QPSK Modulation , High Channel, 1985 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.73	13	Pass

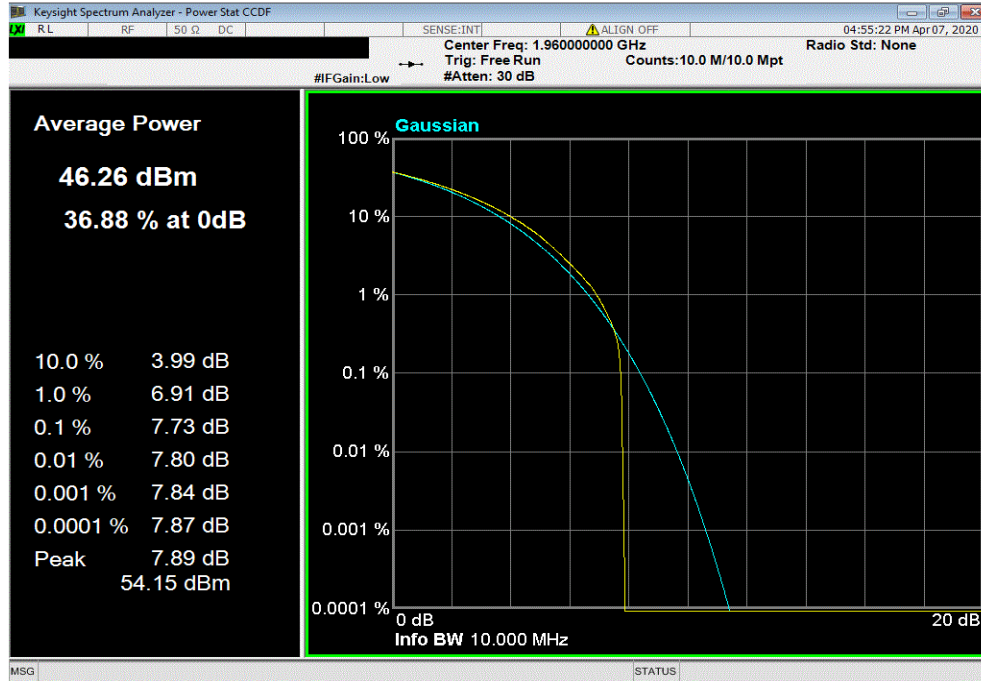


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1935 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.78	13	Pass

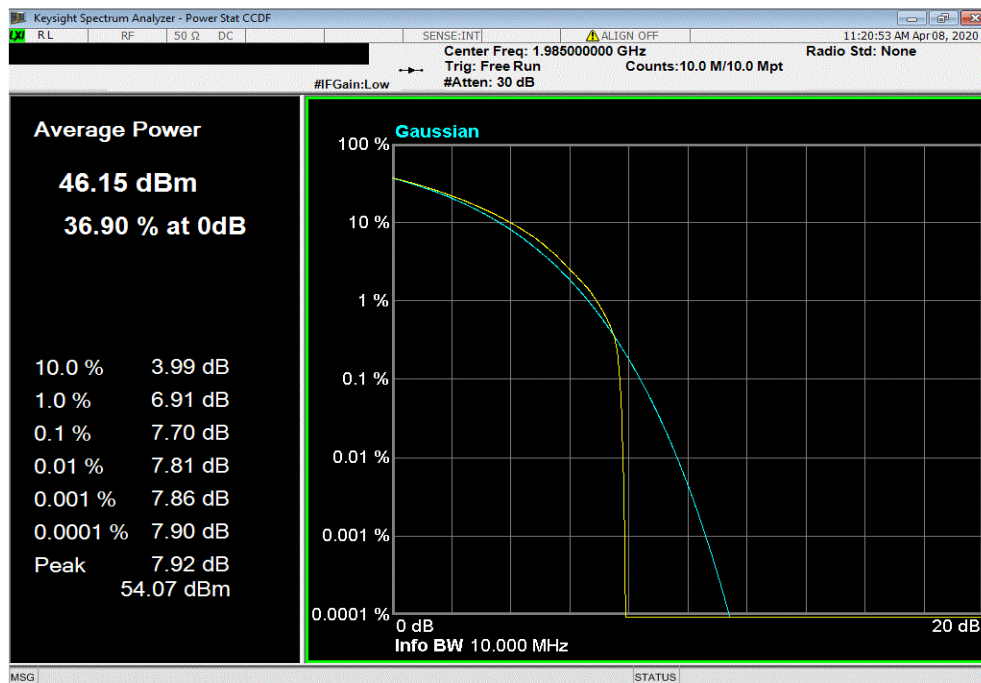


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.73	13	Pass			

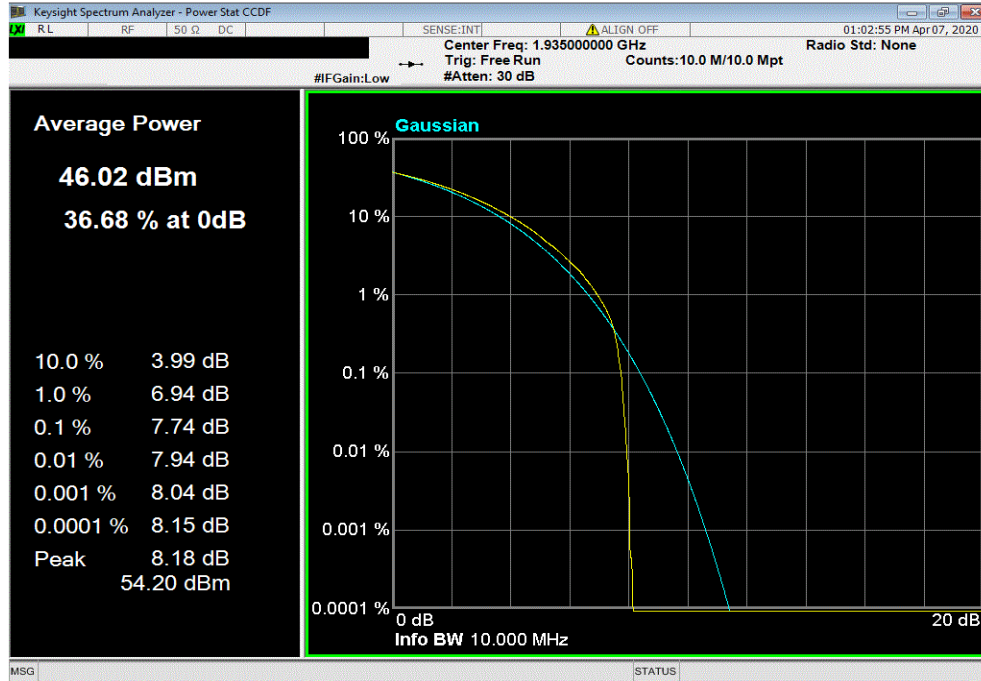


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 16-QAM Modulation, High Channel, 1985 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.7	13	Pass			

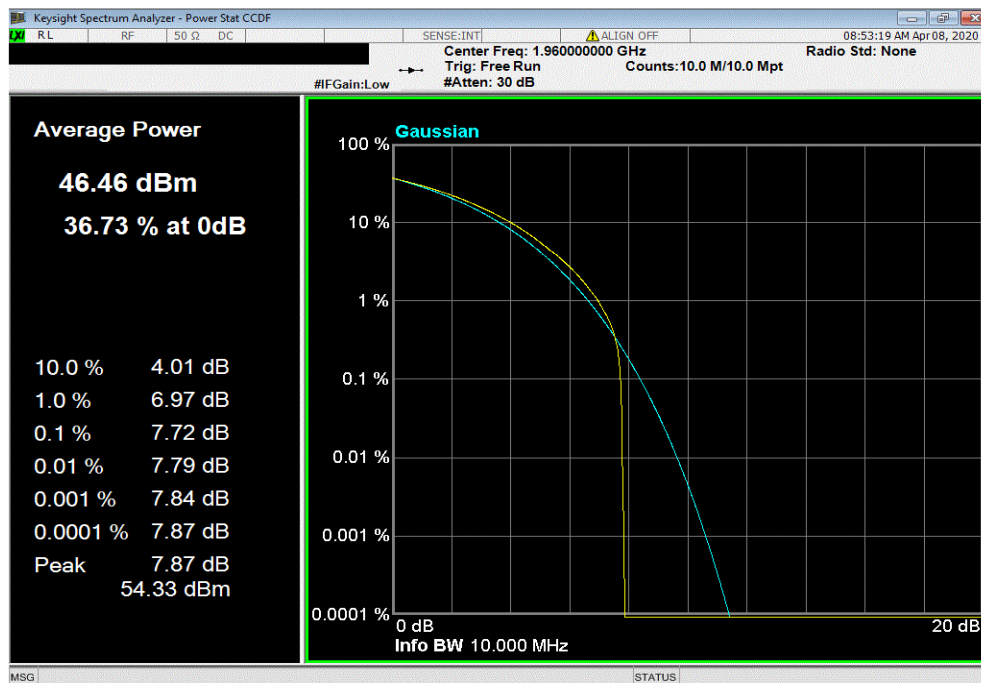


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1935 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.74	13	Pass			

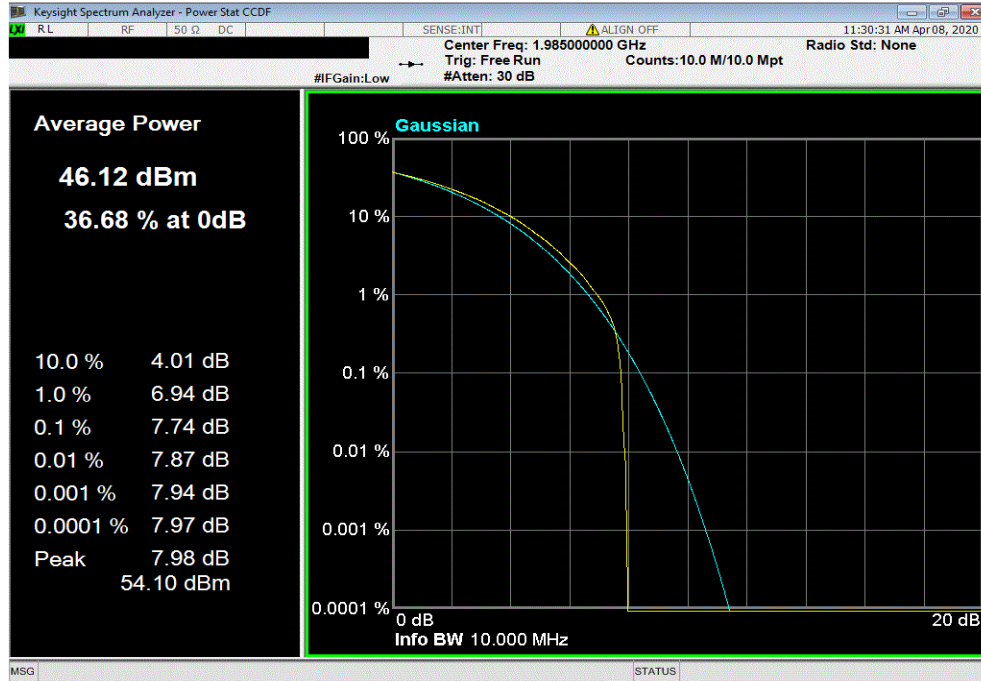


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.72	13	Pass			

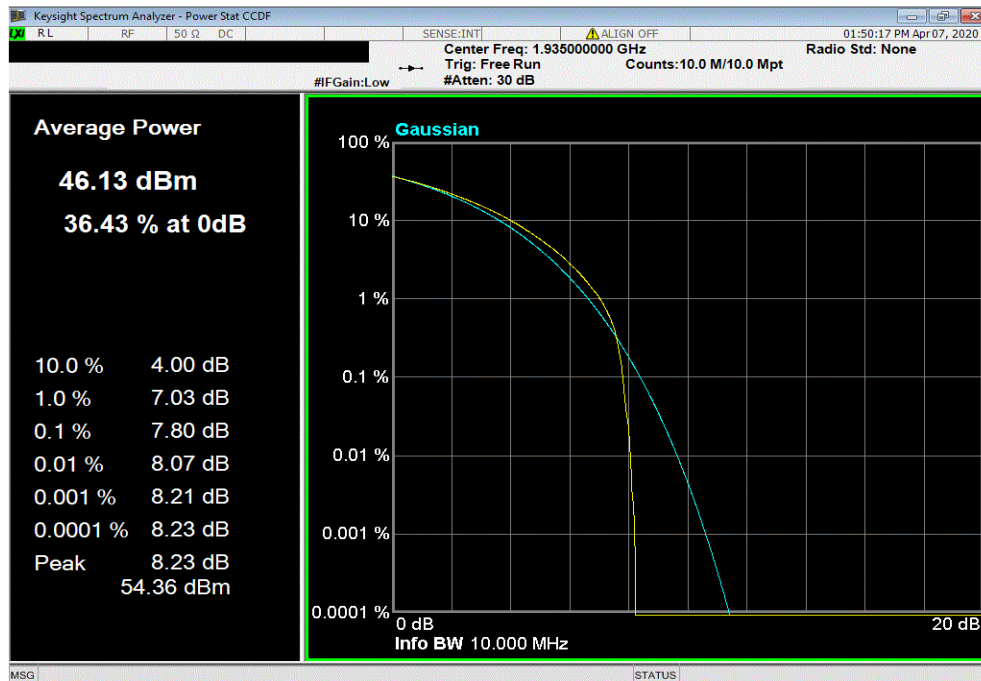


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 64-QAM Modulation, High Channel, 1985 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.74	13	Pass

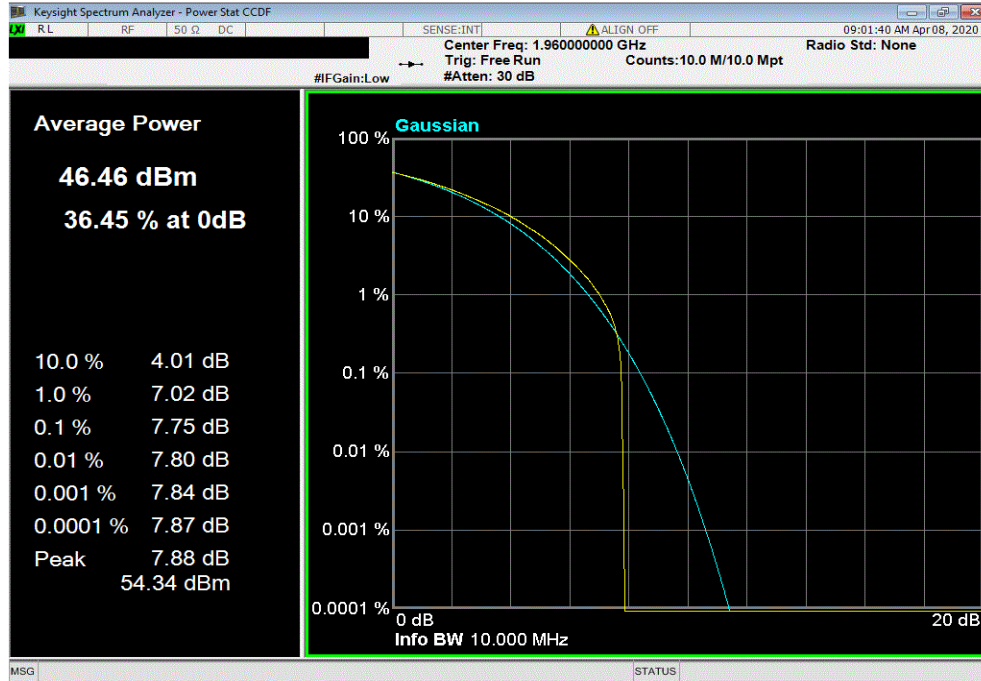


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1935 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.8	13	Pass

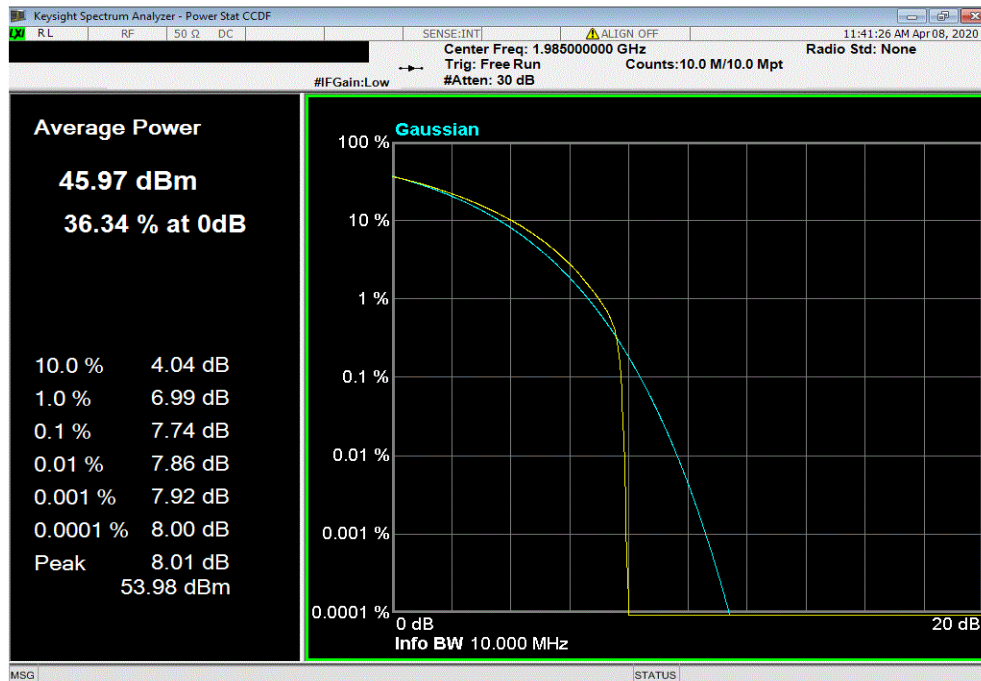


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.75	13	Pass			

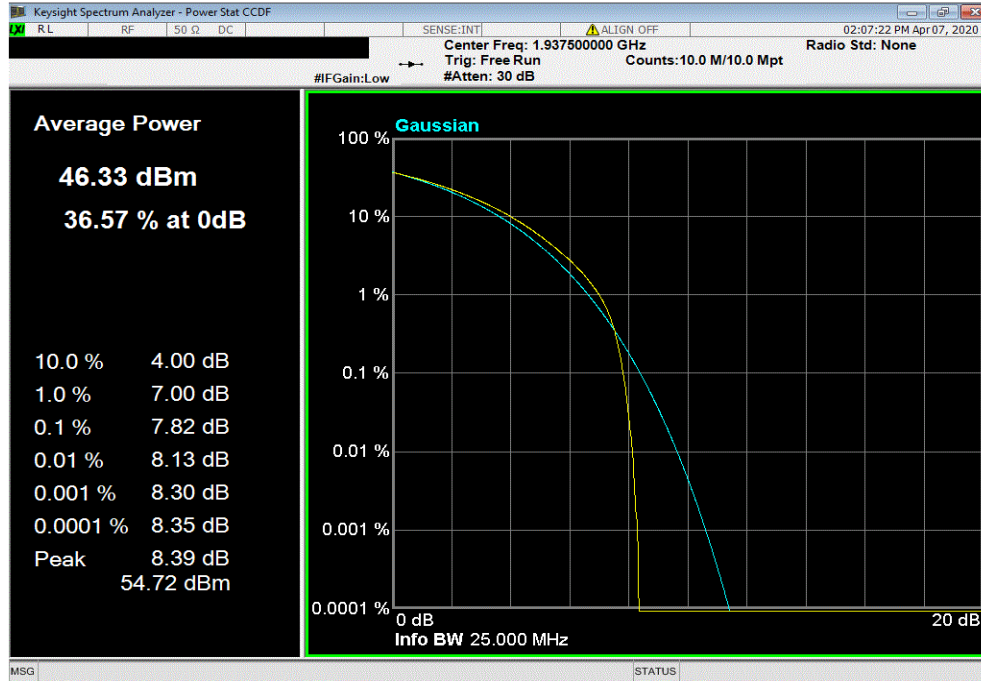


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 10 MHz Bandwidth, 256-QAM Modulation, High Channel, 1985 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.74	13	Pass			

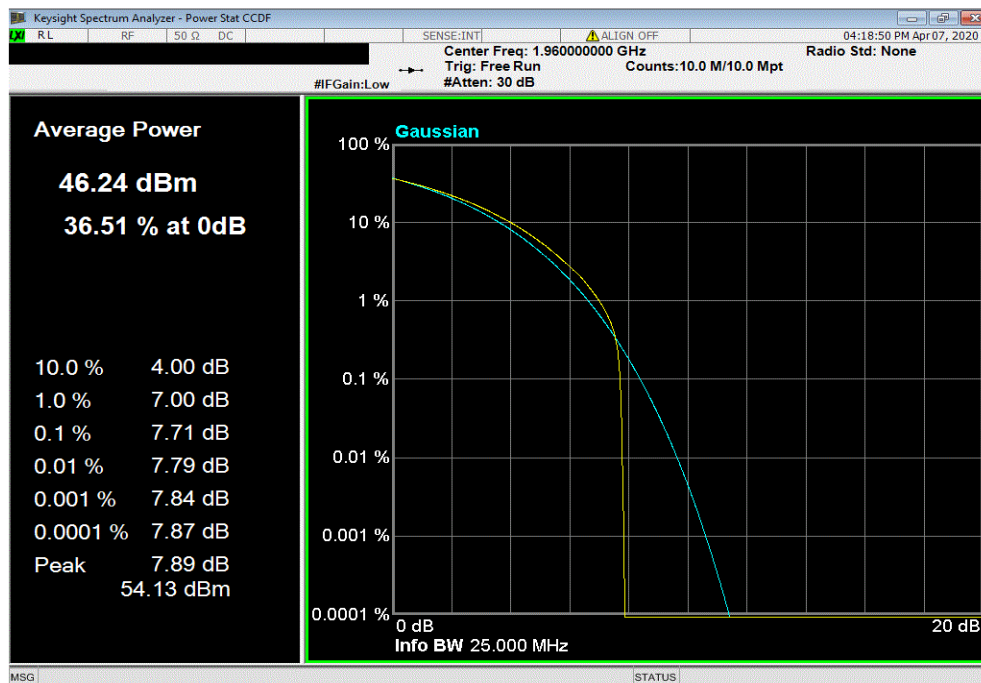


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, QPSK Modulation, Low Channel, 1937.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.82	13	Pass			

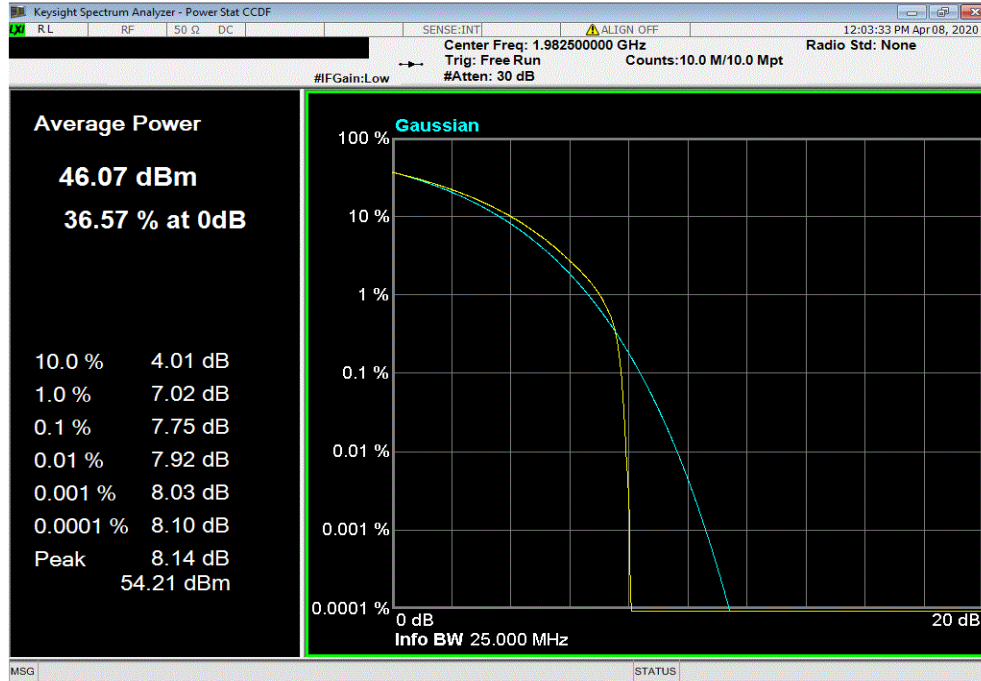


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, QPSK Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.71	13	Pass			

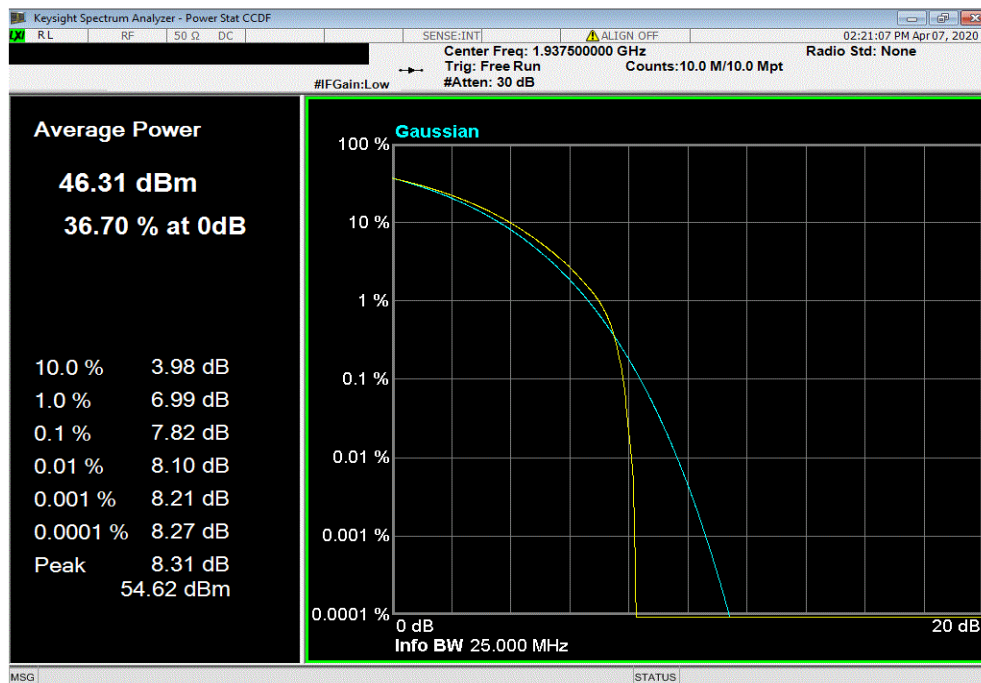


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, QPSK Modulation, High Channel, 1982.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.75	13	Pass

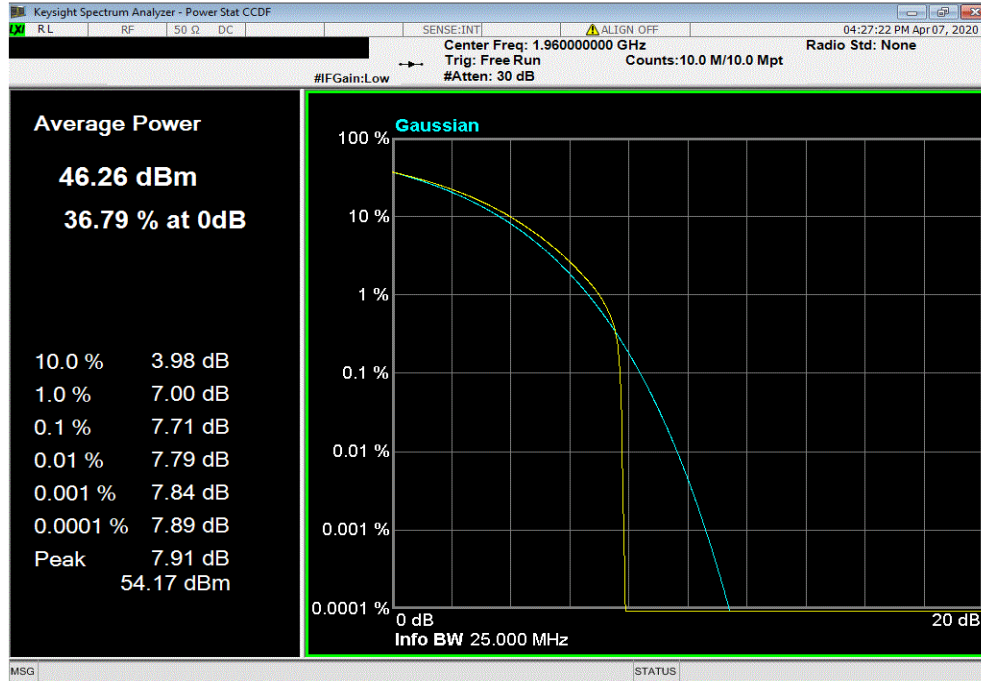


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1937.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.82	13	Pass

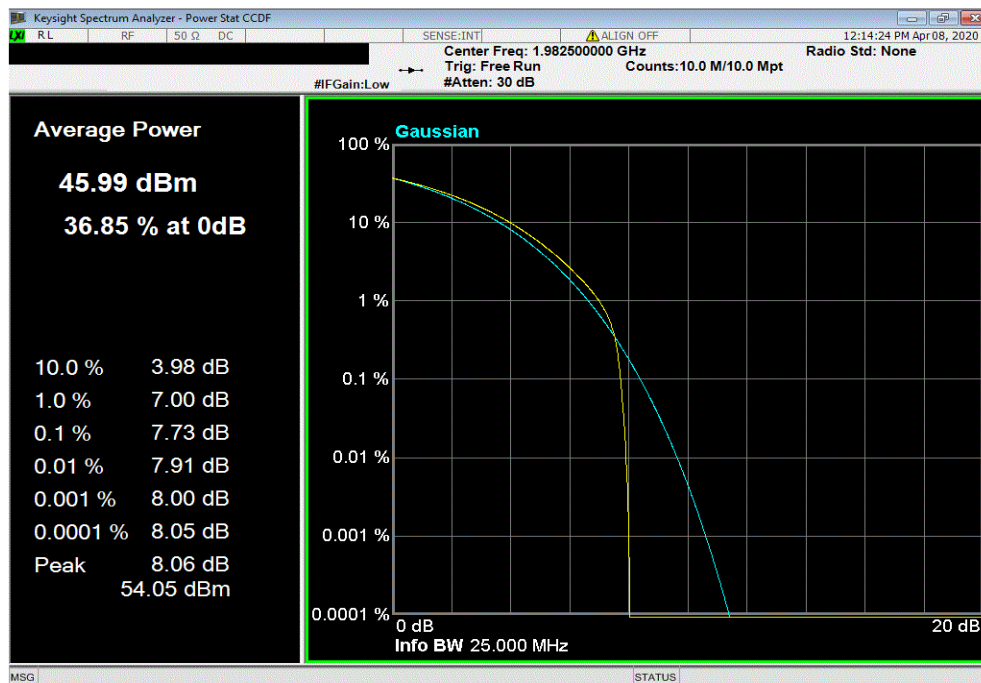


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.71	13	Pass			



Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 16-QAM Modulation, High Channel, 1982.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.73	13	Pass			

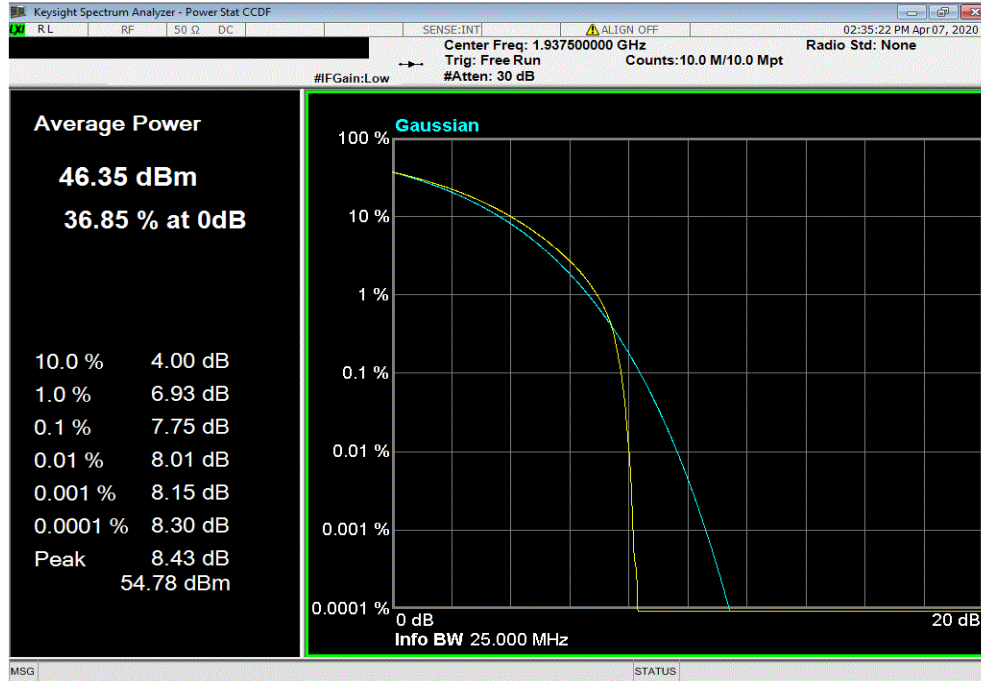


PEAK TO AVERAGE POWER (PAPR) BAND 2

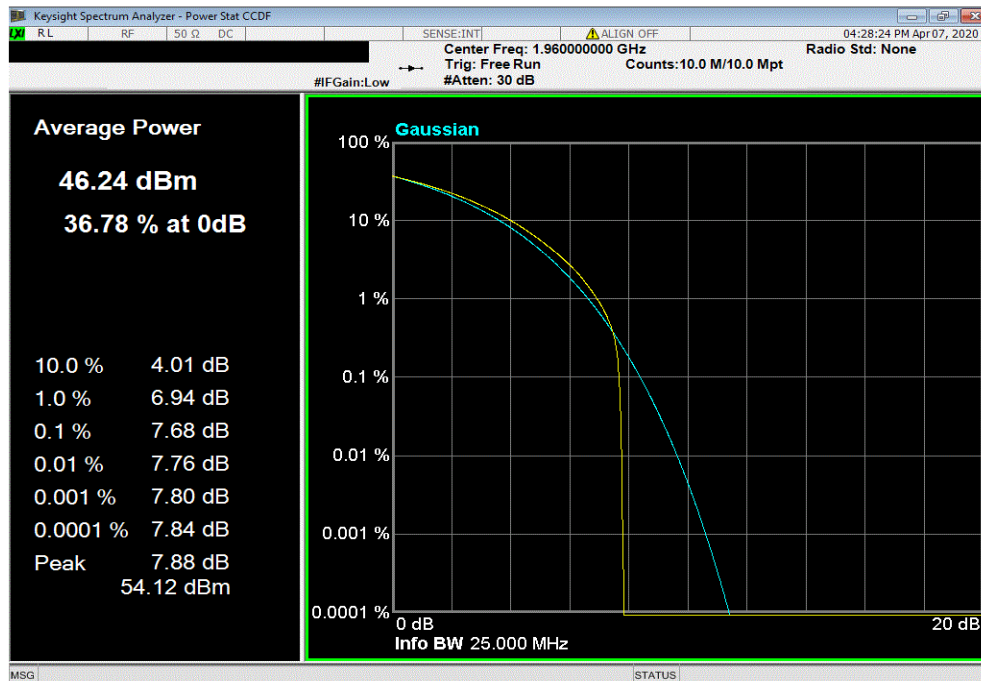


XMI 2020.03.25.0

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1937.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.75	13	Pass			

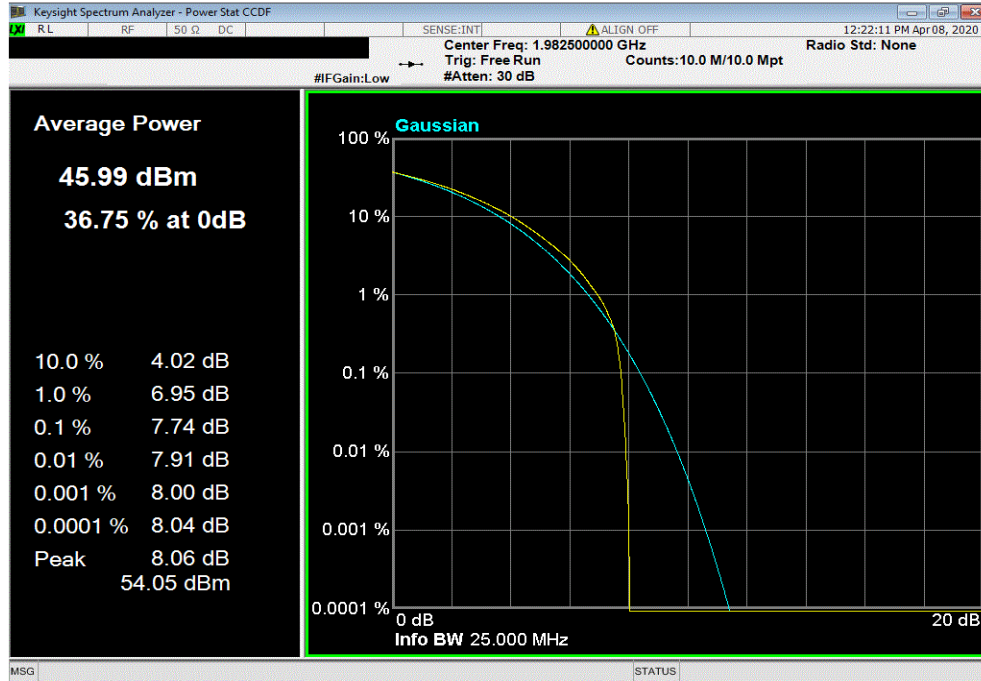


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.68	13	Pass			

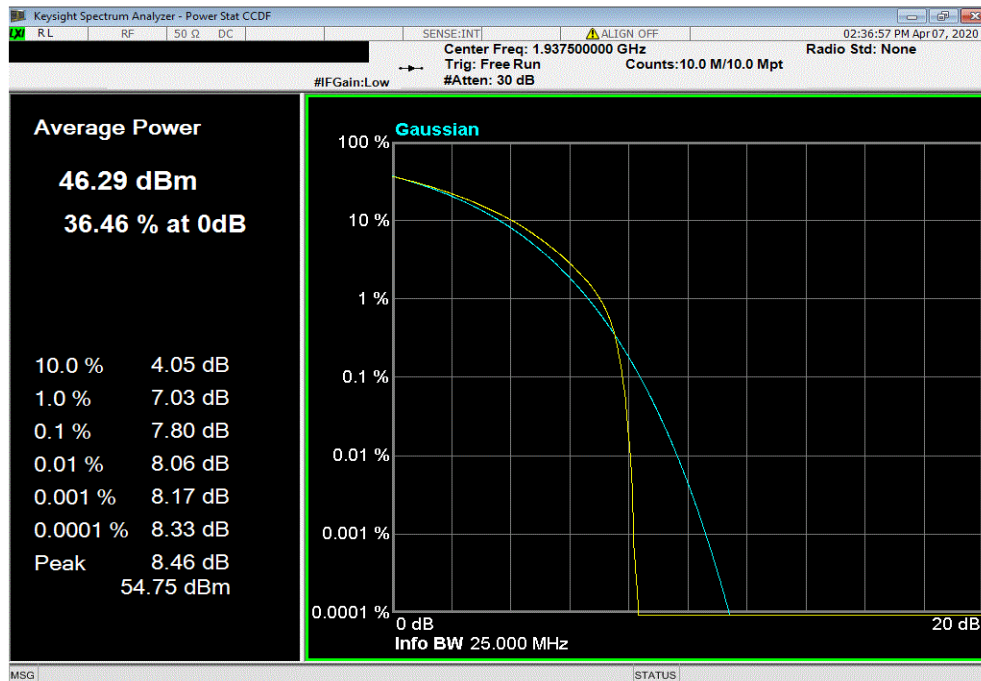


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 64-QAM Modulation, High Channel, 1982.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.74	13	Pass

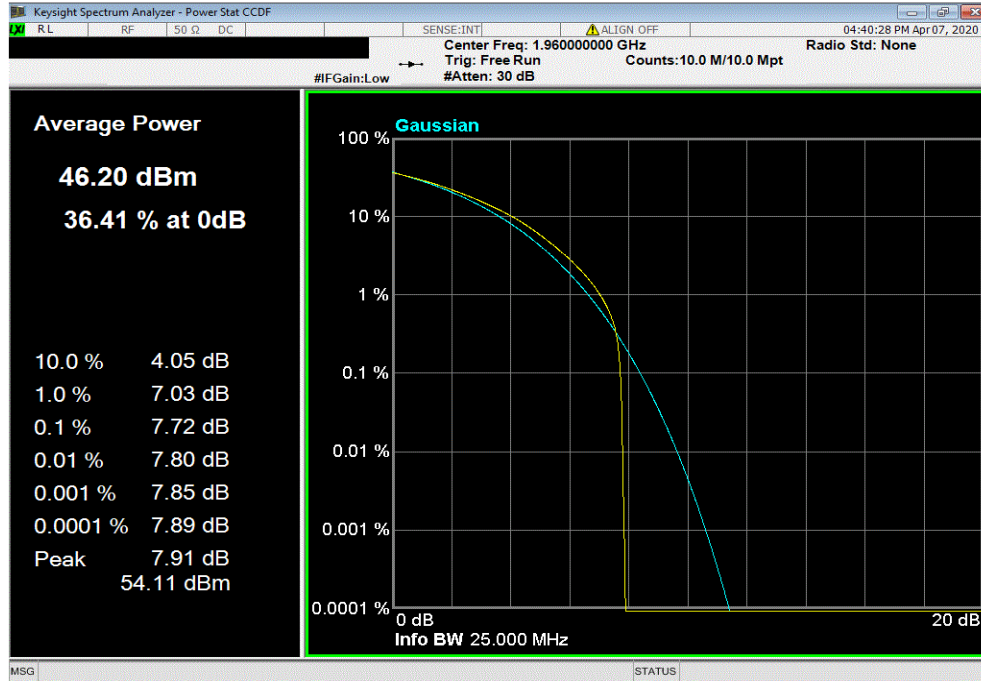


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1937.5 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.8	13	Pass

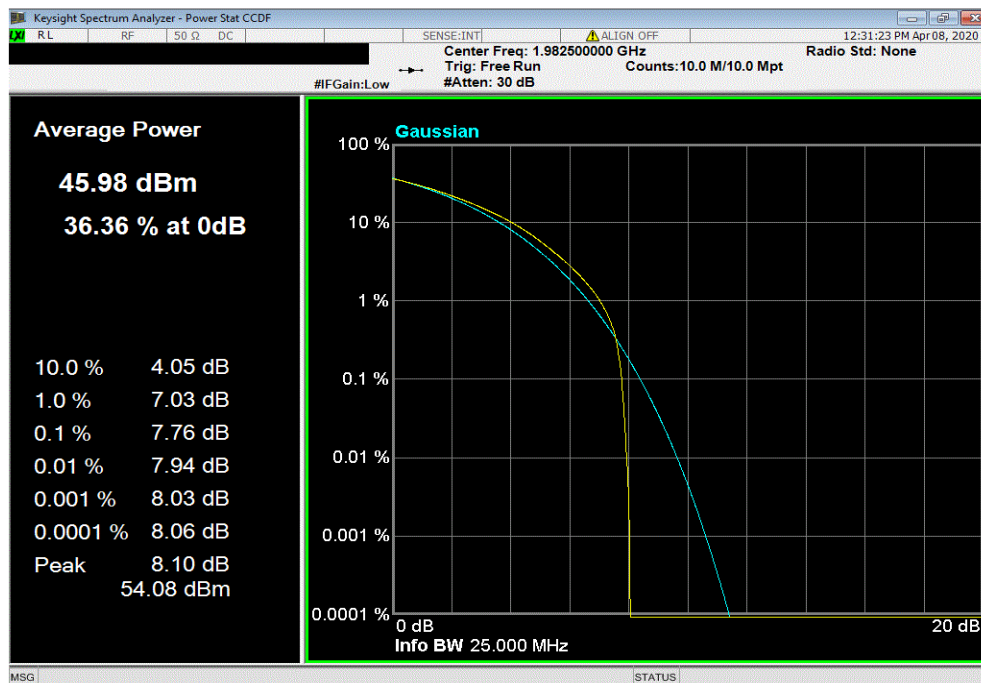


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.72	13	Pass			

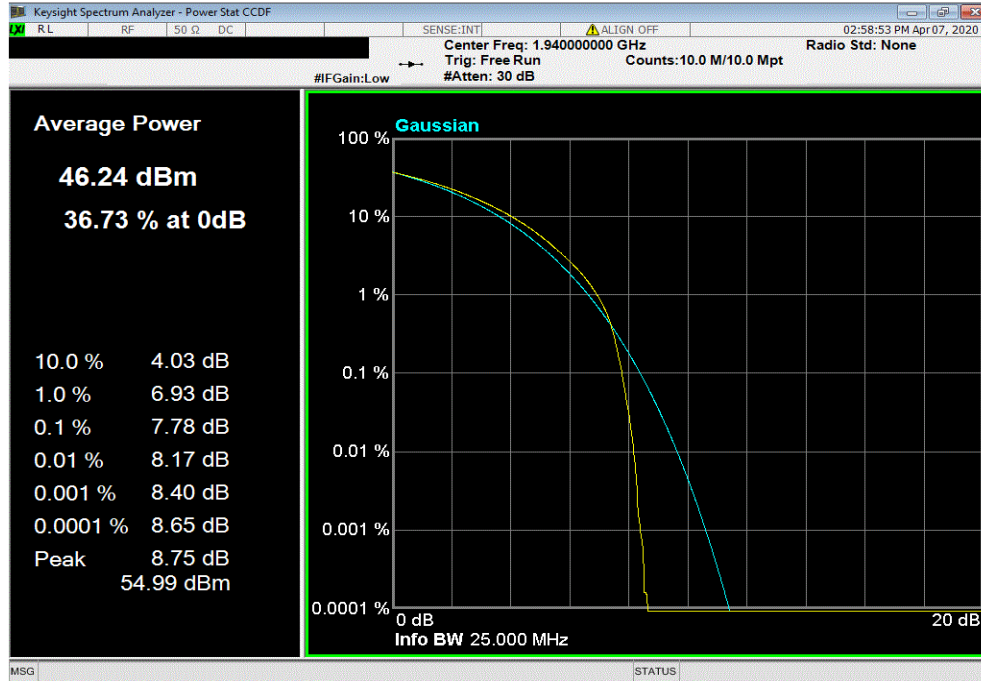


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 15 MHz Bandwidth, 256-QAM Modulation, High Channel, 1982.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.76	13	Pass			

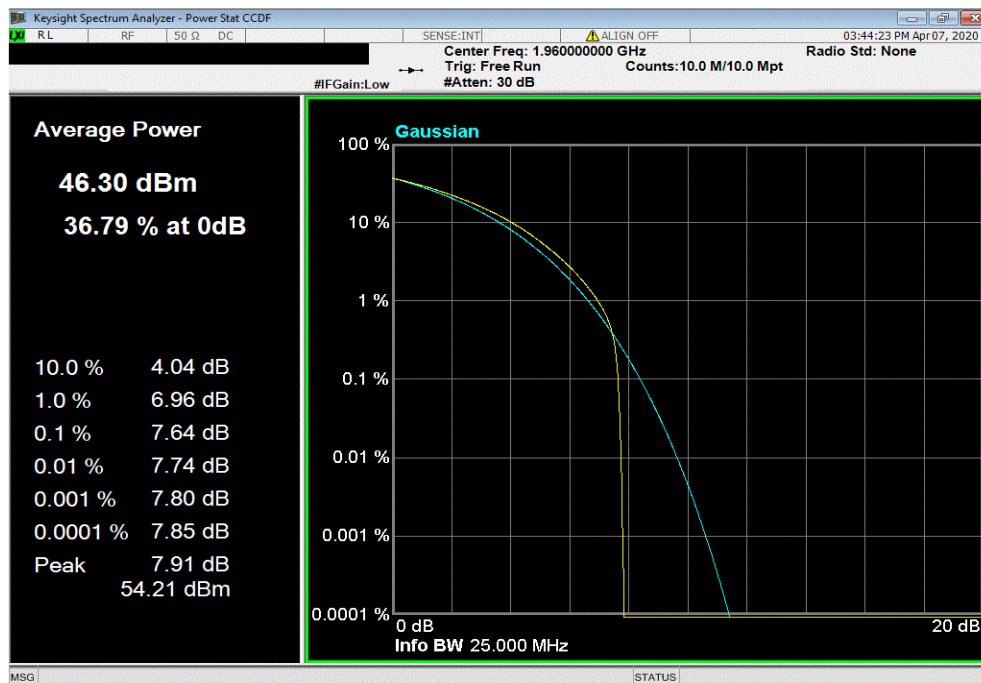


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, QPSK Modulation , Low Channel, 1940 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.78	13	Pass

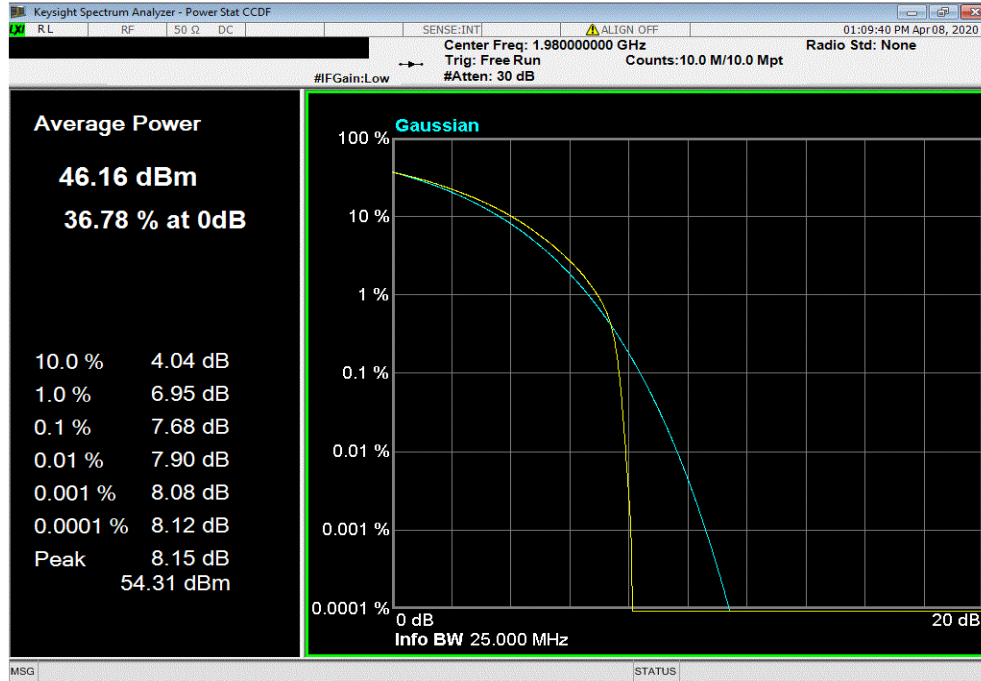


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, QPSK Modulation , Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.64	13	Pass

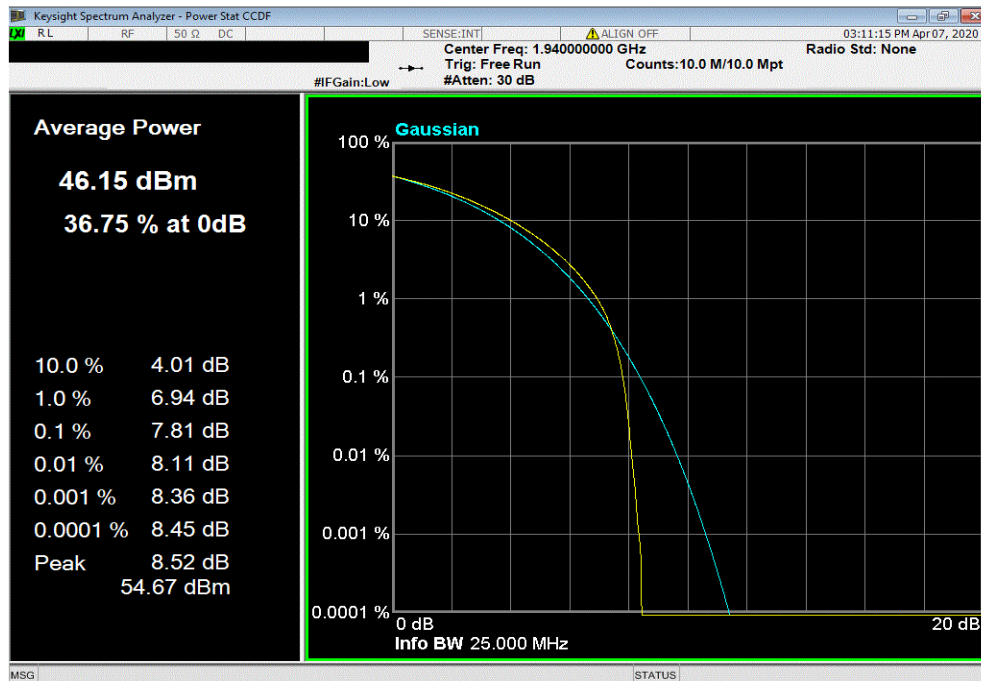


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, QPSK Modulation, High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.68	13	Pass



Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 16-QAM Modulation, Low Channel, 1940 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.81	13	Pass

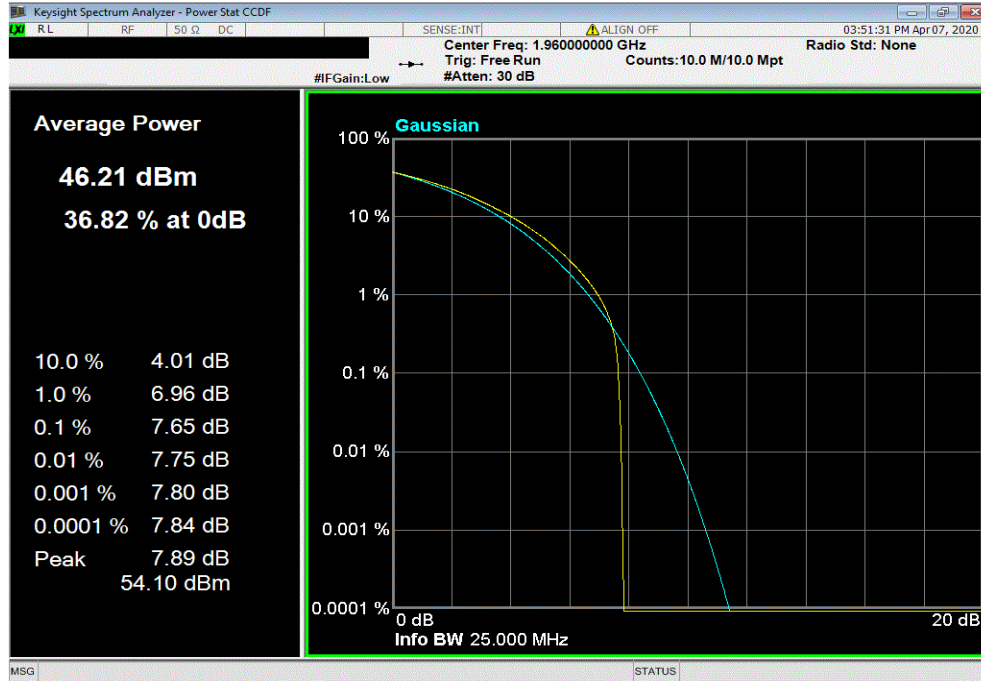


PEAK TO AVERAGE POWER (PAPR) BAND 2

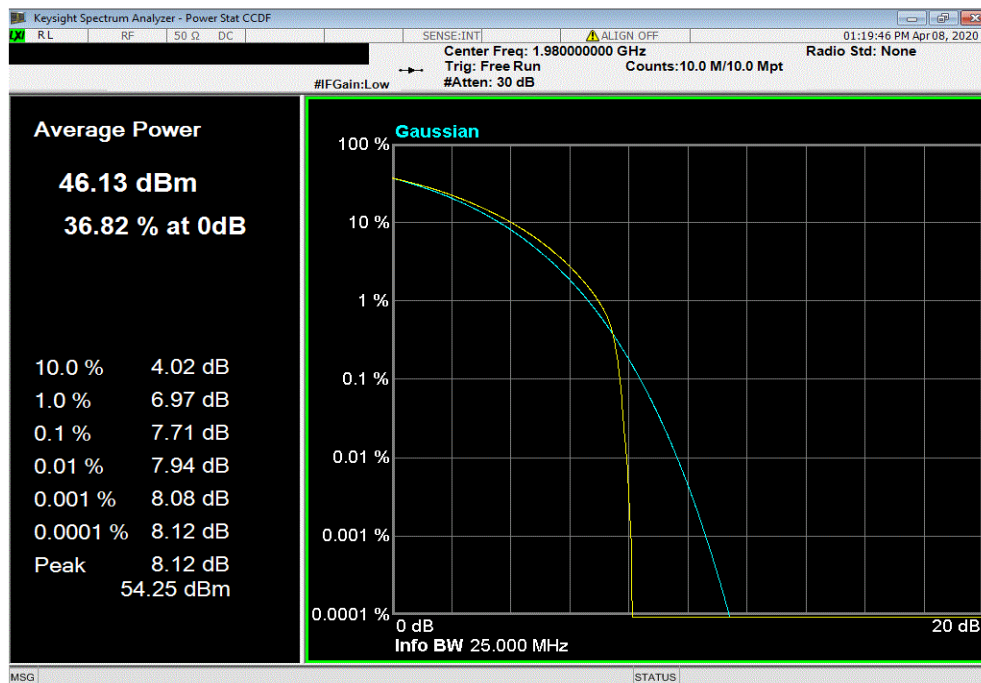


XMIT 2020.03.25.0

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.65	13	Pass

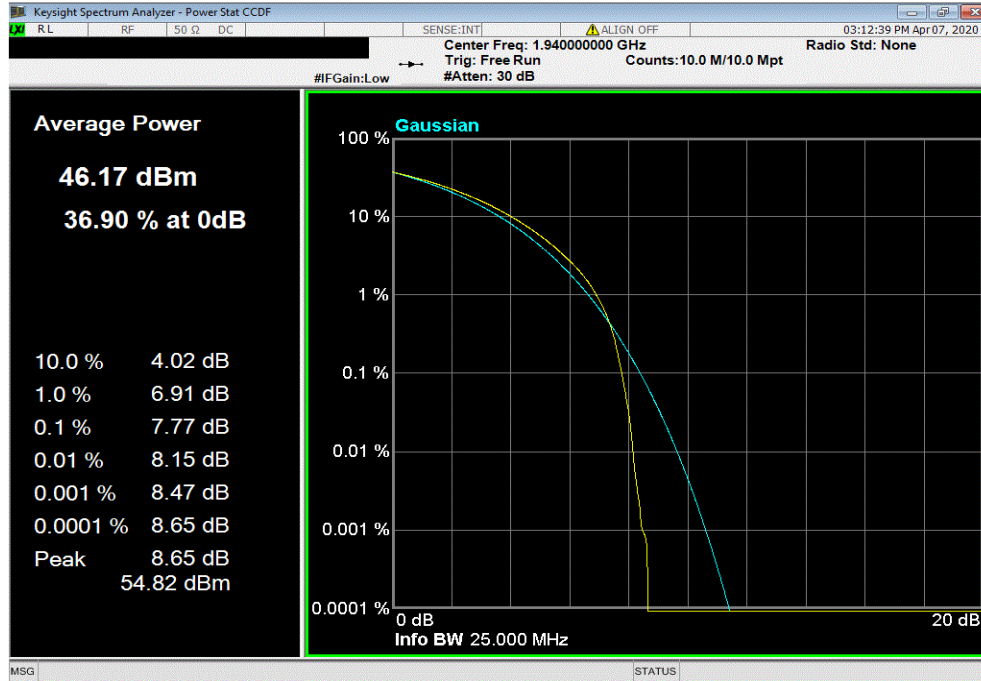


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 16-QAM Modulation, High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.71	13	Pass

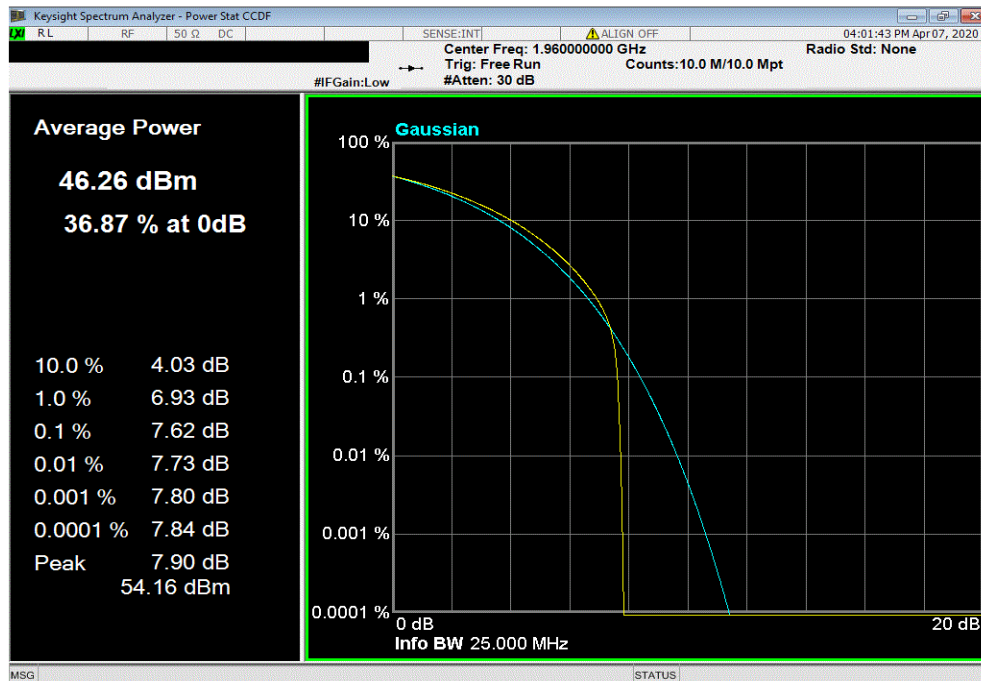


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 64-QAM Modulation, Low Channel, 1940 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.77	13	Pass			

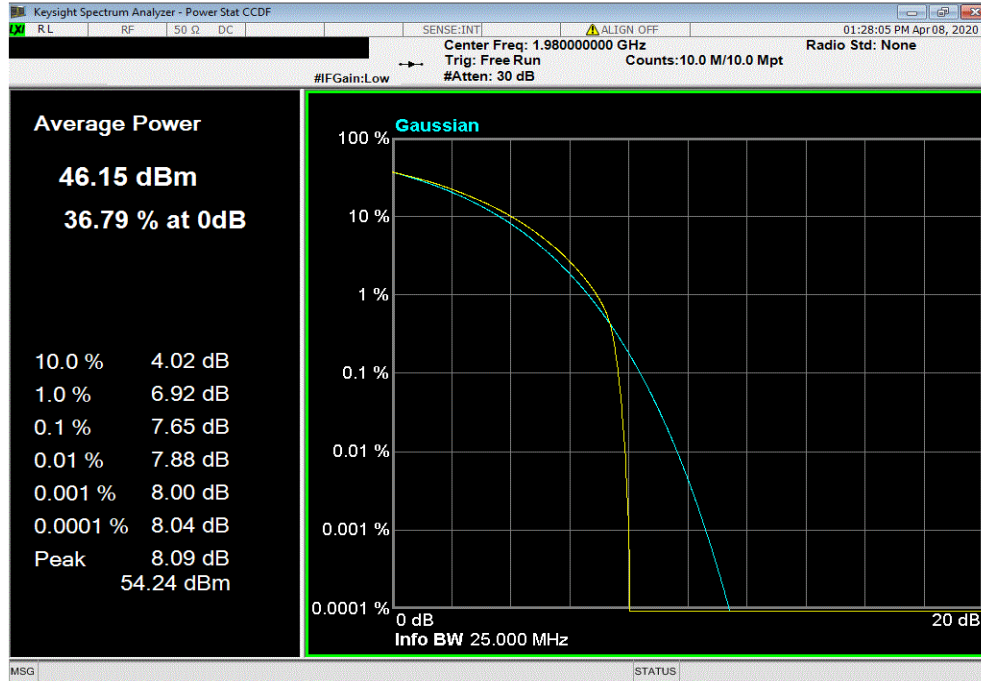


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 1960 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.62	13	Pass			

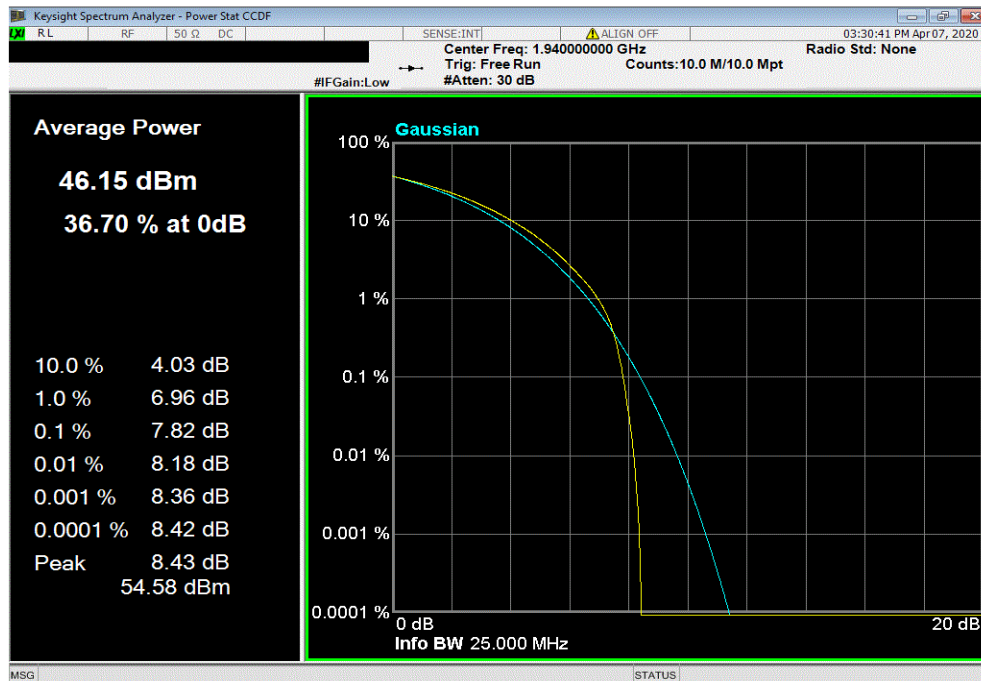


PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 64-QAM Modulation, High Channel, 1980 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.65	13	Pass			

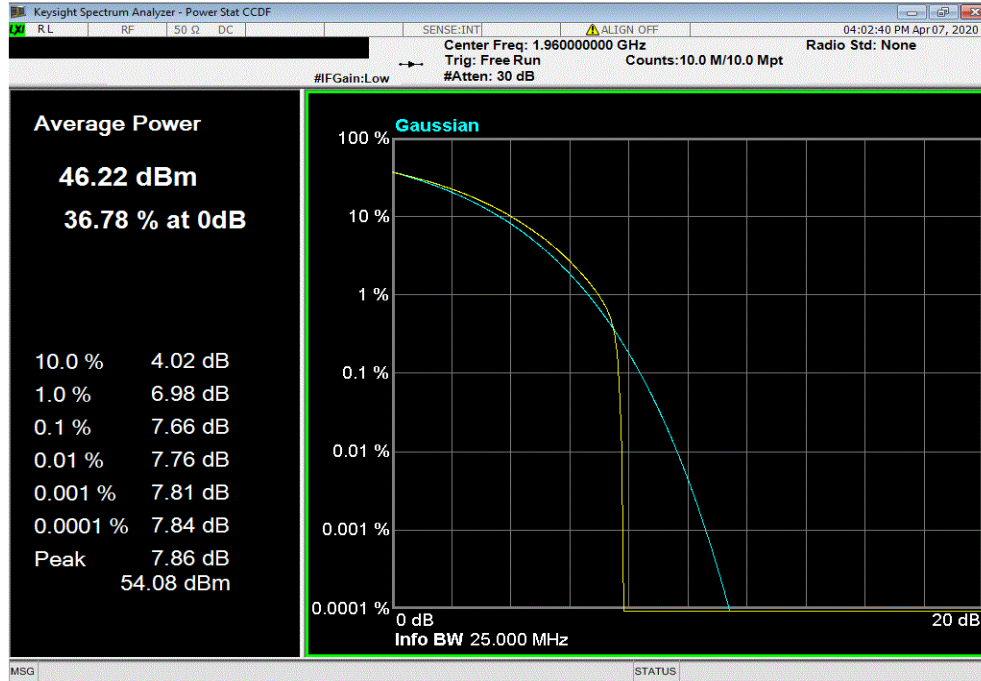


Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 256-QAM Modulation, Low Channel, 1940 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.82	13	Pass			



PEAK TO AVERAGE POWER (PAPR) BAND 2

Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 1960 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.66	13	Pass



Band 2, 1930 MHz - 1990 MHz, 5G, Port 7, 20 MHz Bandwidth, 256-QAM Modulation, High Channel, 1980 MHz						
				PAPR Value (dB)	PAPR Limit (dB)	Results
				7.7	13	Pass

