



FCC Test Report

ANNEX 1 LTE BAND 2

FCC ID: 2A7RP-AT319S

Applicant: HANWEI ELECTRONICS GROUP CORPORATION
Address: No.169, Xue Song Road National Hi-Tech Zone, Zhengzhou, 450001, China
Manufacturer: HANWEI ELECTRONICS GROUP CORPORATION
Address: No.169, Xue Song Road National Hi-Tech Zone, Zhengzhou, 450001, China
EUT: ALCOHOL TESTER
Trade Mark: N/A
Model Number: AT319S
Date of Receipt: Jun. 09, 2022
Test Date: Jun. 09, 2022 – Aug. 04, 2022
Date of Report: Aug. 04, 2022
Prepared By: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China
FCC CFR Title 47 Part27
FCC CFR Title 47 Part24 Subpart E
Applicable Standards: TIA-603 Rev E 2016
FCC KDB 971168 D01 Power Meas. License Digital Systems v03v01
ANSI C63.26:2015
Test Result: Pass
Report Number: DL-20220708027E

Prepared (Test Engineer): Pxing Huang
Reviewer (Supervisor): Jack Bu
Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



TABLE OF CONTENTS

Test Report Declaration	Page
1. EMISSION TEST RESULTS.....	3
1.1. -26dB and 99% Occupied Bandwidth.....	3
1.2. Conducted Spurious Emissions	18
1.3. Conducted Out of Band Emissions.....	24

**1. EMISSION TEST RESULTS****1.1. -26dB and 99% Occupied Bandwidth****1.1.1. Test Result**

EUT Mode Bandwidth	Modulation	Frequency (MHz)	99% Occupy bandwidth (MHz)	-26dB bandwidth (MHz)
LTE Band 2 1.4 MHz	QPSK	1850.7	1.096	1.297
	QAM16	1850.7	1.091	1.274
	QPSK	1880.0	1.106	1.278
	QAM16	1880.0	1.102	1.306
	QPSK	1909.3	1.096	1.287
	QAM16	1909.3	1.104	1.308
LTE Band 2 3 MHz	QPSK	1851.5	2.701	2.984
	QAM16	1851.5	2.697	2.976
	QPSK	1880.0	2.701	2.970
	QAM16	1880.0	2.696	2.997
	QPSK	1908.5	2.715	2.991
	QAM16	1908.5	2.696	3.001
LTE Band 2 5 MHz	QPSK	1852.5	4.527	4.913
	QAM16	1852.5	4.497	4.939
	QPSK	1880.0	4.508	4.999
	QAM16	1880.0	4.514	4.933
	QPSK	1907.5	4.515	4.983
	QAM16	1907.5	4.532	5.006
LTE Band 2 10 MHz	QPSK	1855.0	8.987	9.867
	QPSK	1880.0	8.994	9.835
	QPSK	1905.0	8.952	9.828
LTE Band 2 15MHz	QPSK	1857.5	13.444	14.562
	QPSK	1880.0	13.422	14.566
	QPSK	1902.5	13.439	14.530
LTE Band 2 20MHz	QPSK	1860.0	17.960	19.315
	QPSK	1880.0	17.889	19.200
	QPSK	1900.0	17.904	19.349

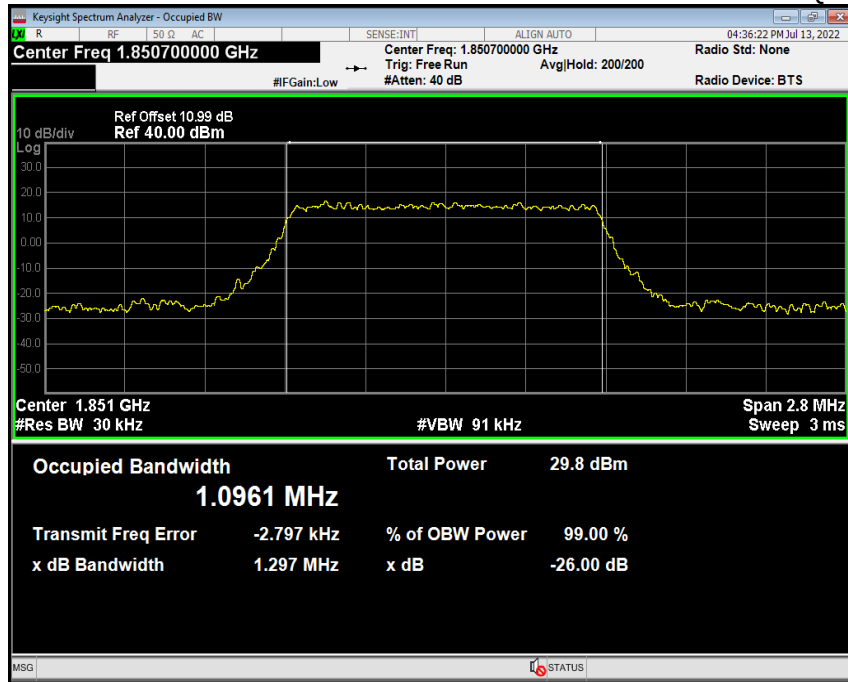
Note: Measurement Uncertainty: $\pm 20\text{Hz}$.

Test plot as follows:



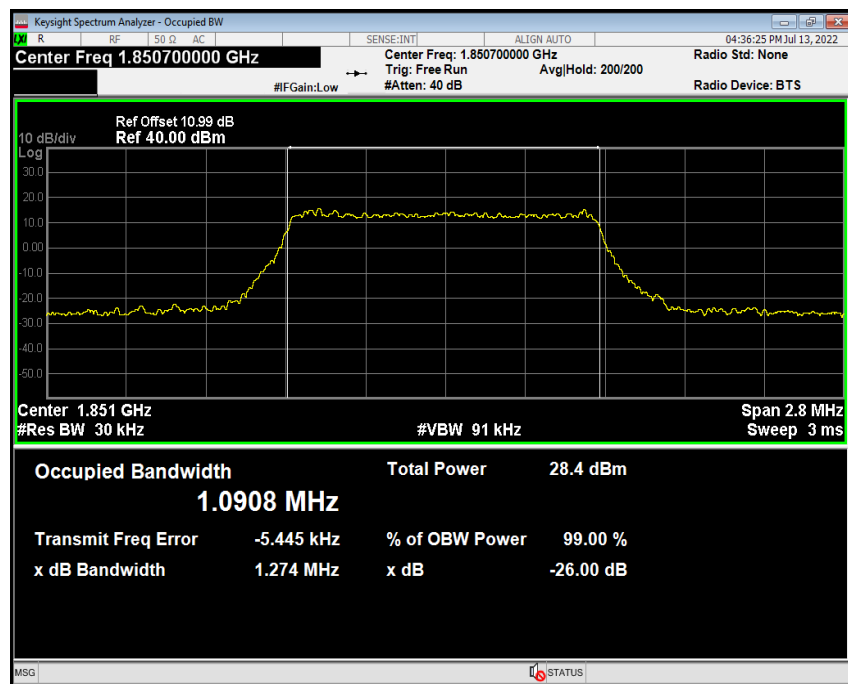
LTE Band 2 Lowest channel

1.4 MHz QPSK



LTE Band 2 Lowest channel

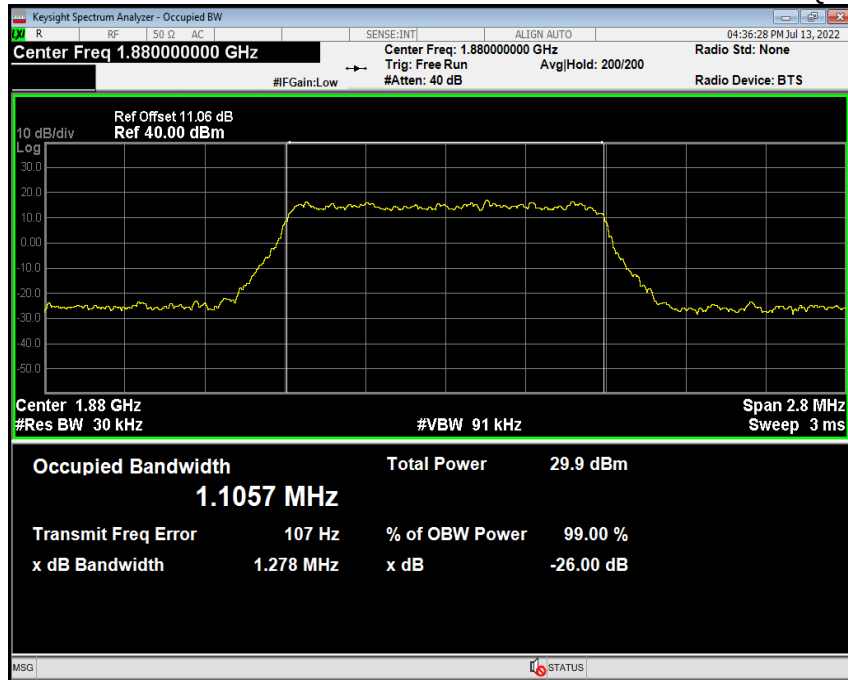
1.4 MHz QAM16





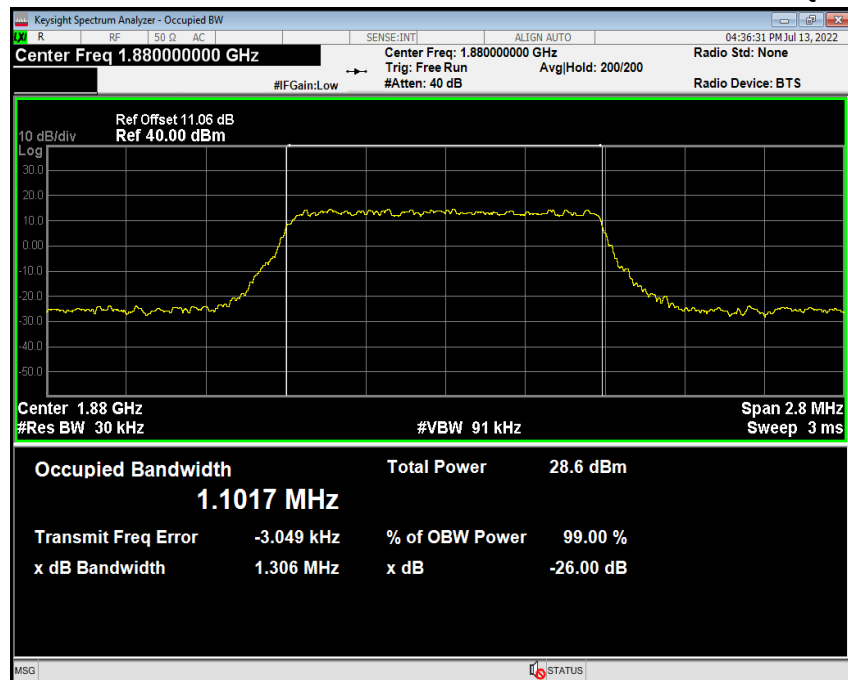
LTE Band 2 Middle channel

1.4 MHz QPSK



LTE Band 2 Middle channel

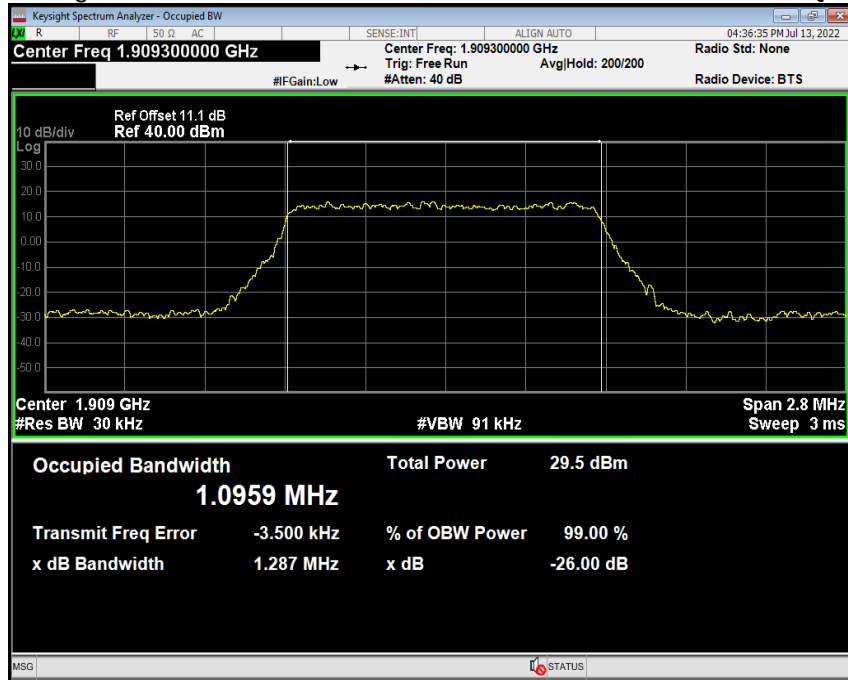
1.4 MHz QAM16





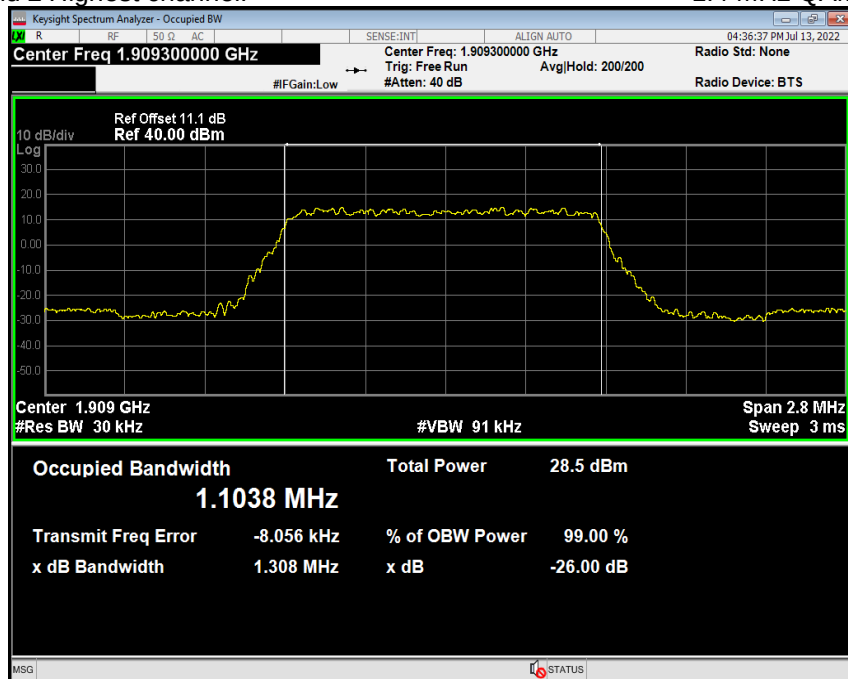
LTE Band 2 Highest channel:

1.4 MHz QPSK



LTE Band 2 Highest channel:

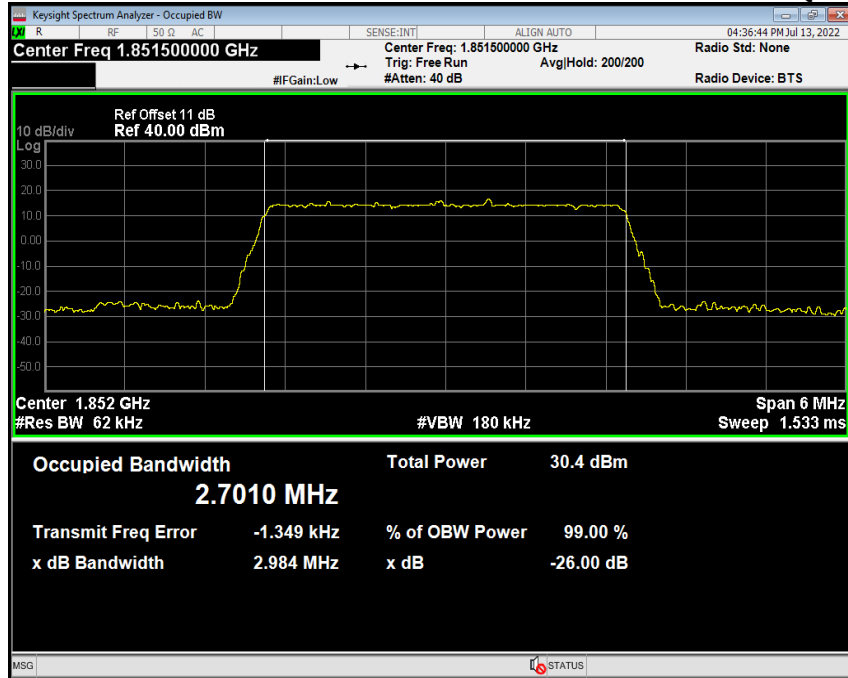
1.4 MHz QAM16





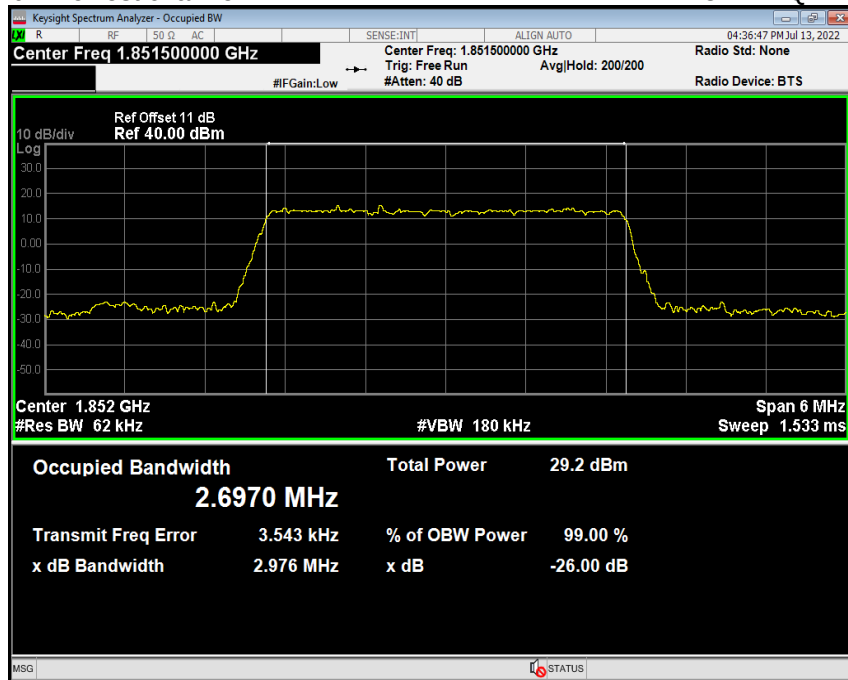
LTE Band 2 Lowest channel

3 MHz QPSK



LTE Band 2 Lowest channel

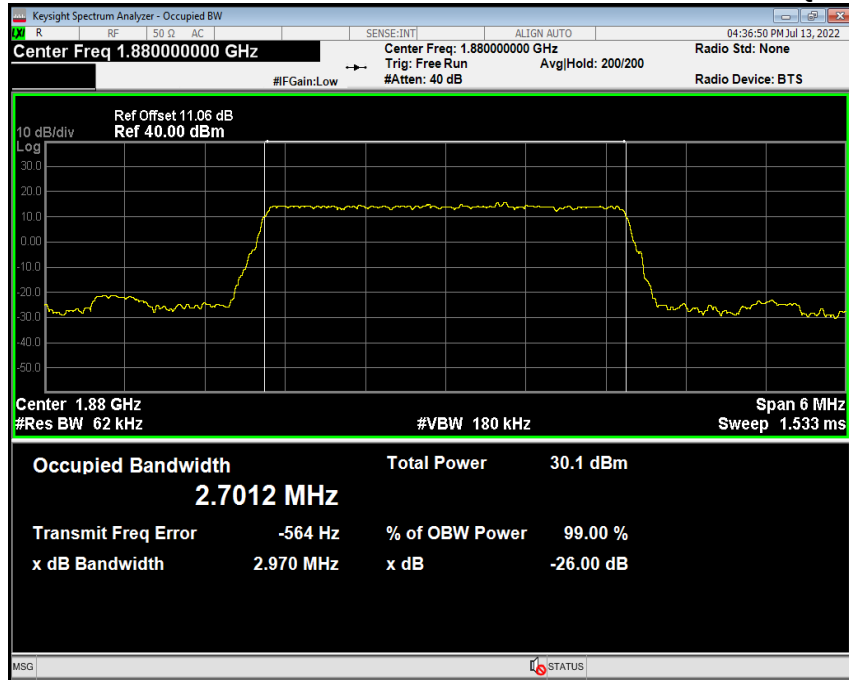
3 MHz QAM16





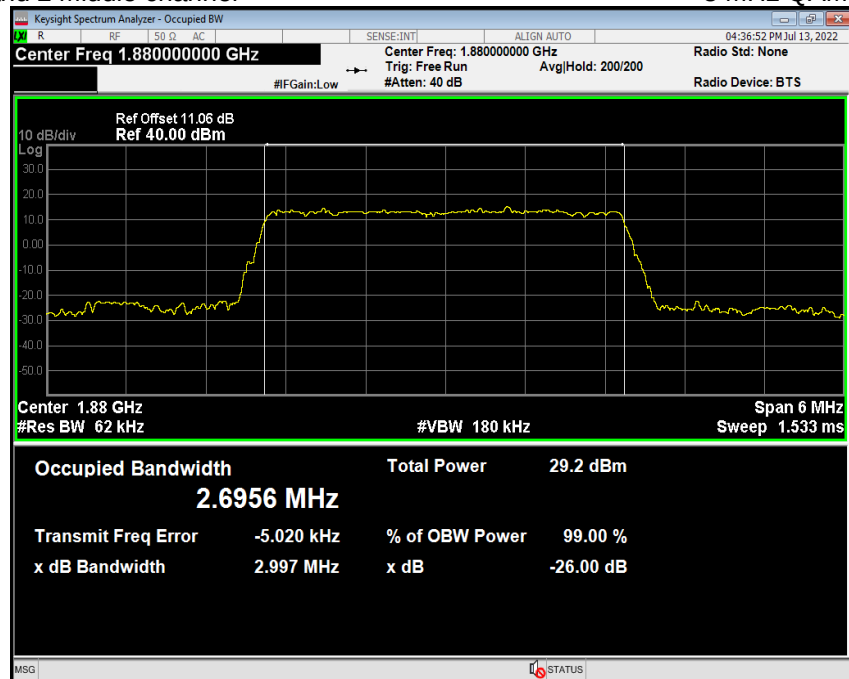
LTE Band 2 Middle channel

3 MHz QPSK



LTE Band 2 Middle channel

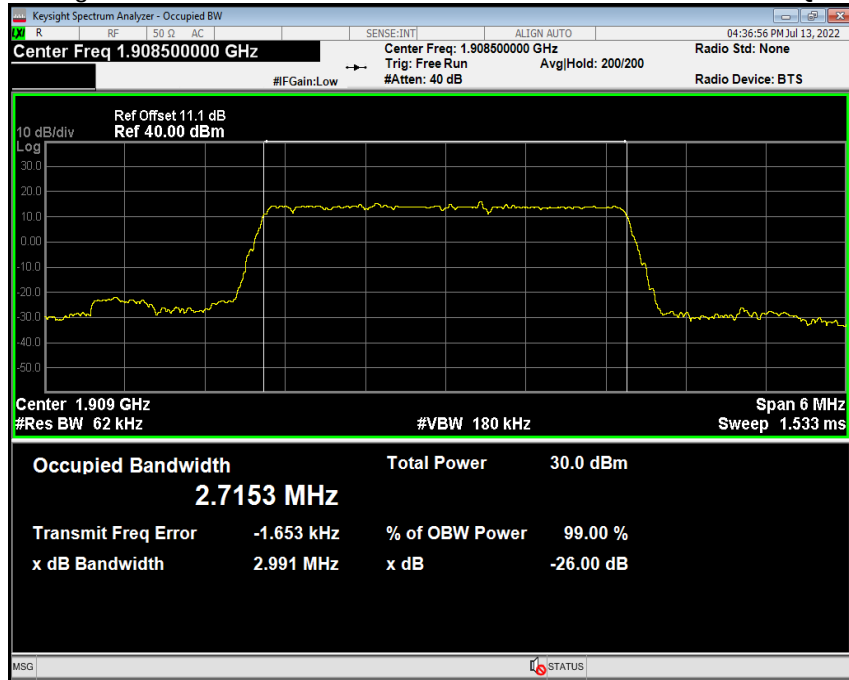
3 MHz QAM16





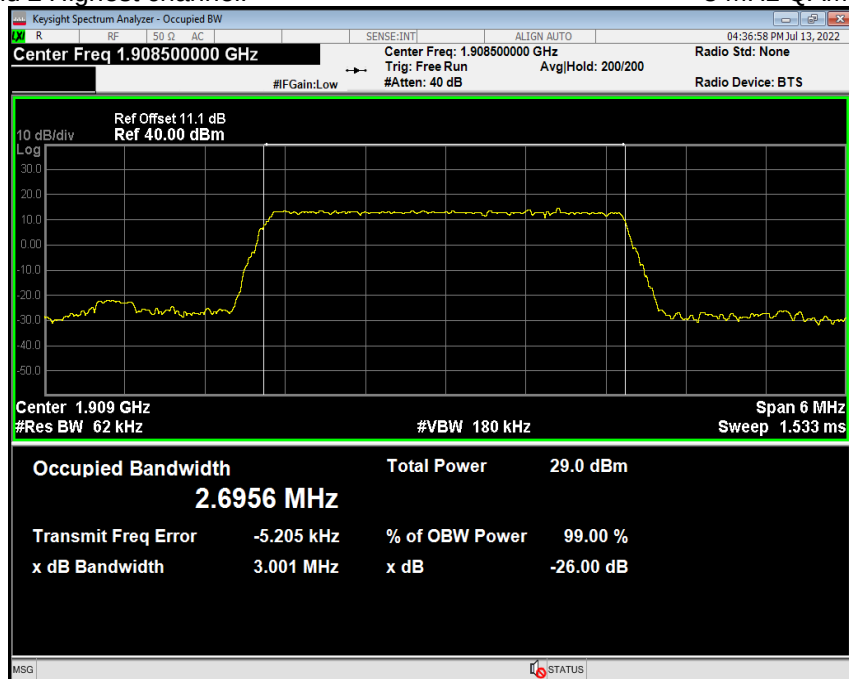
LTE Band 2 Highest channel:

3 MHz QPSK



LTE Band 2 Highest channel:

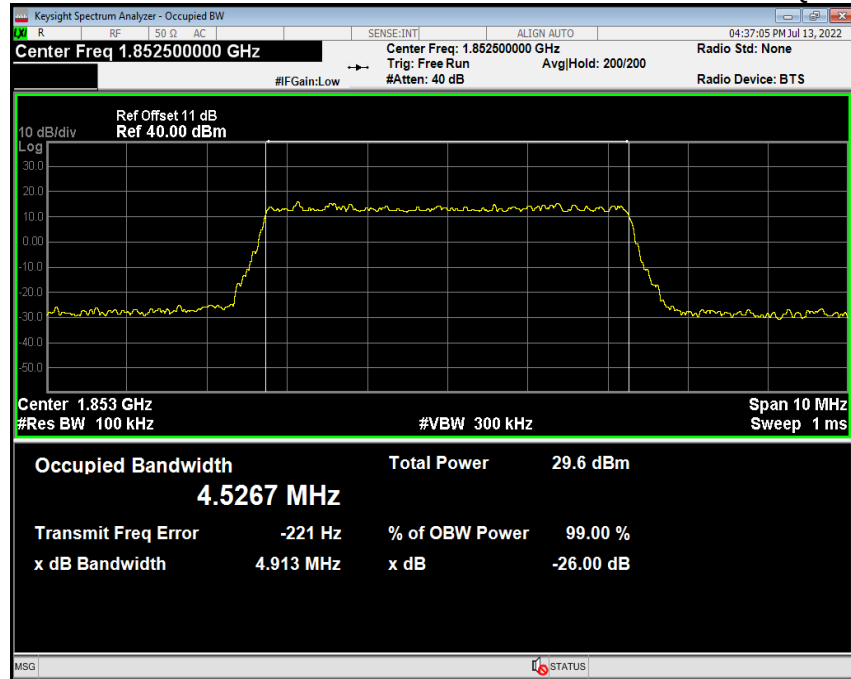
3 MHz QAM16





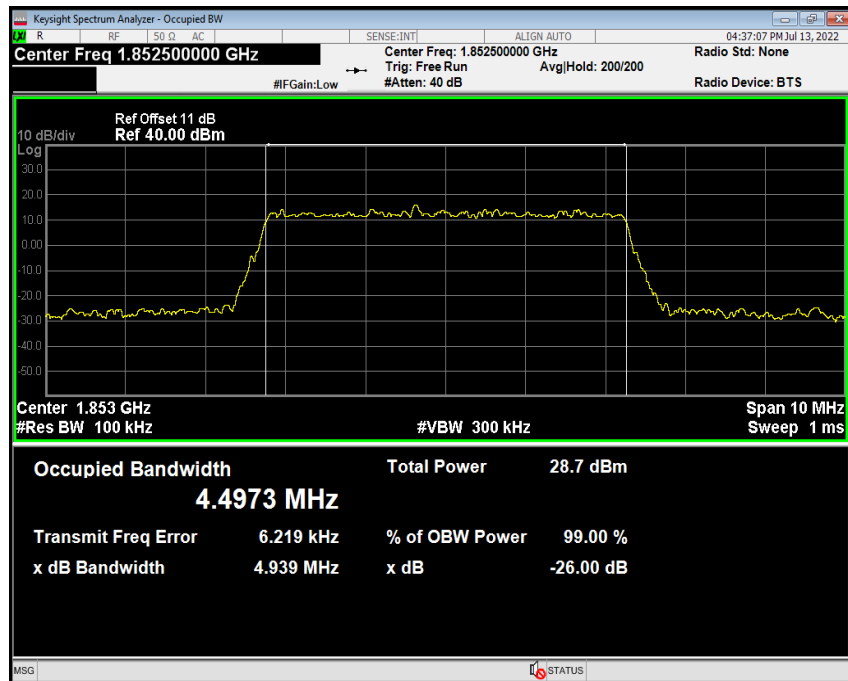
LTE Band 2 Lowest channel

5 MHz QPSK



LTE Band 2 Lowest channel

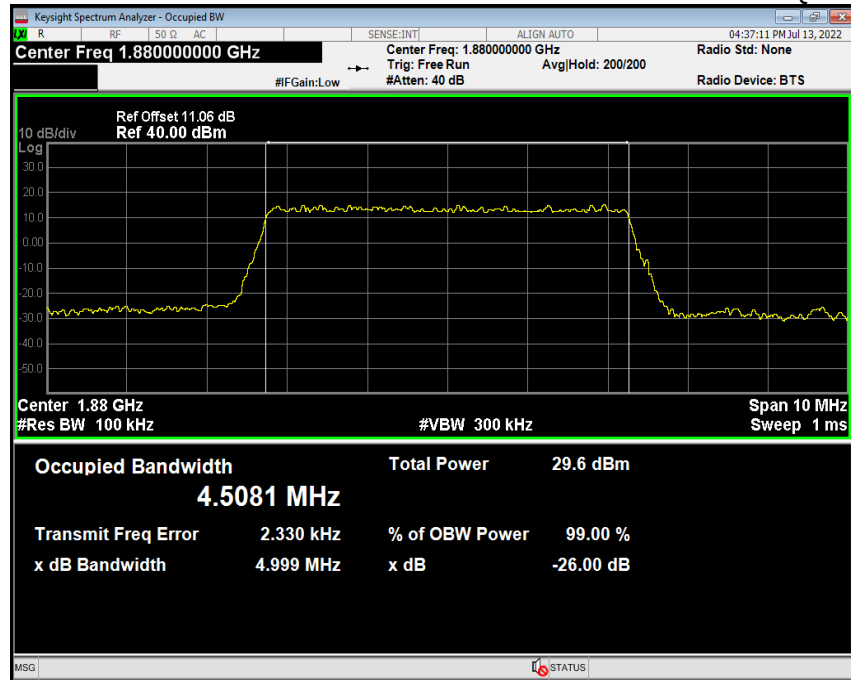
5 MHz QAM16





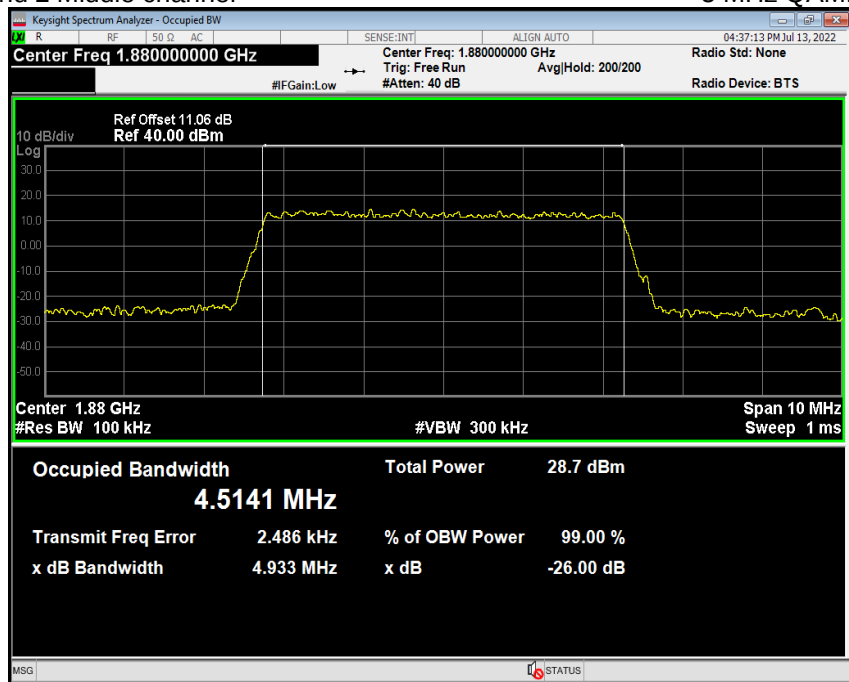
LTE Band 2 Middle channel

5 MHz QPSK



LTE Band 2 Middle channel

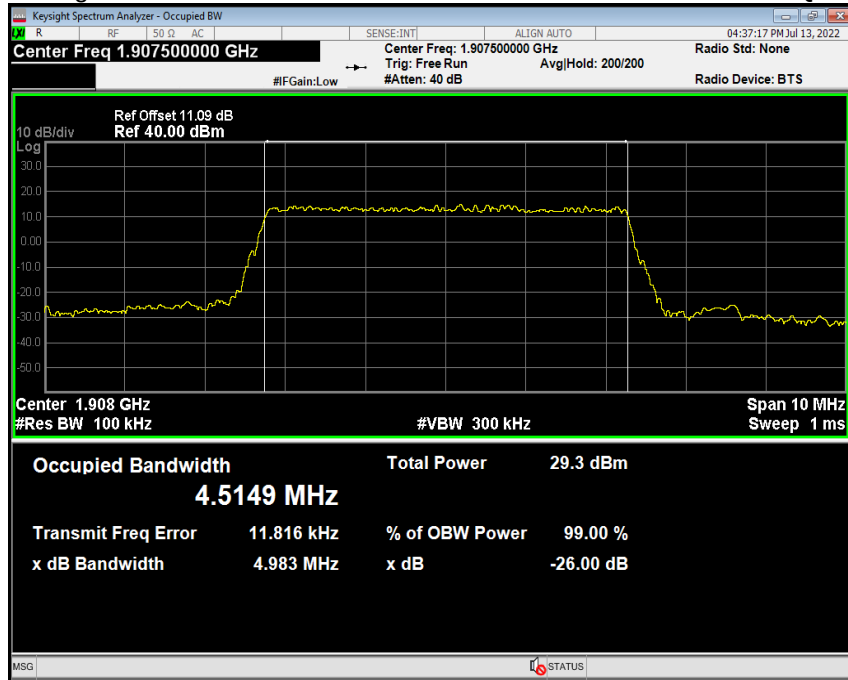
5 MHz QAM16





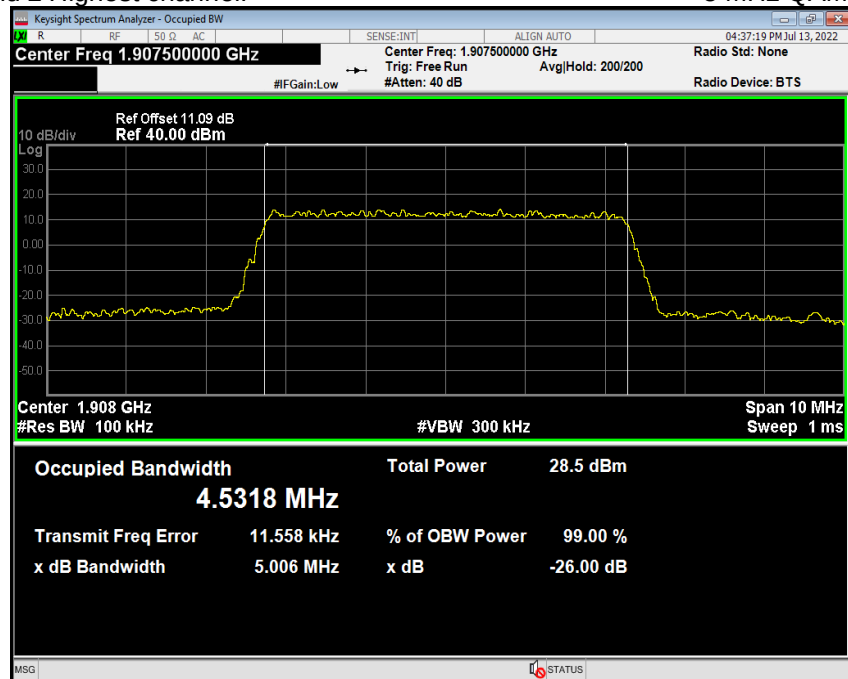
LTE Band 2 Highest channel:

5 MHz QPSK



LTE Band 2 Highest channel:

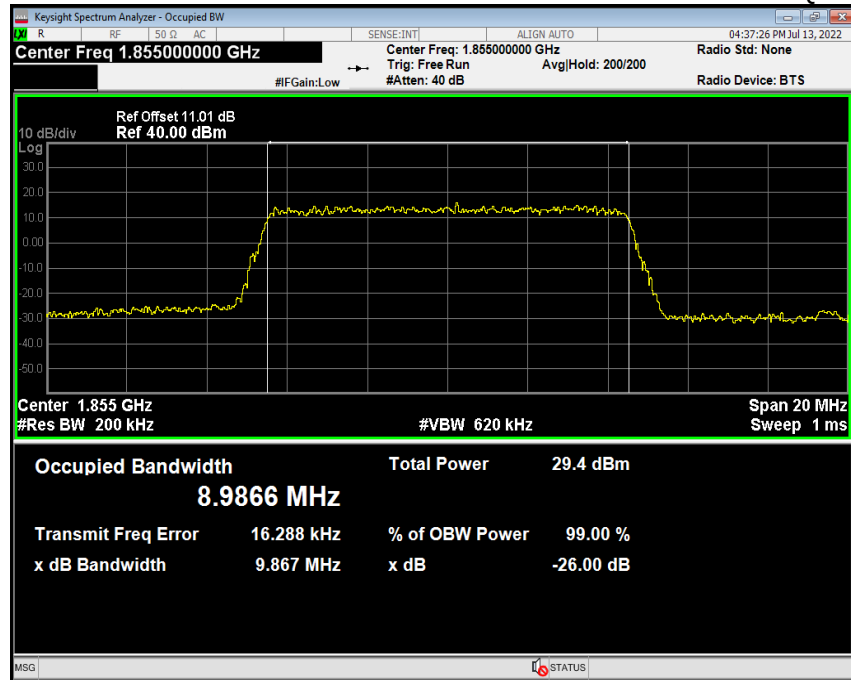
5 MHz QAM16





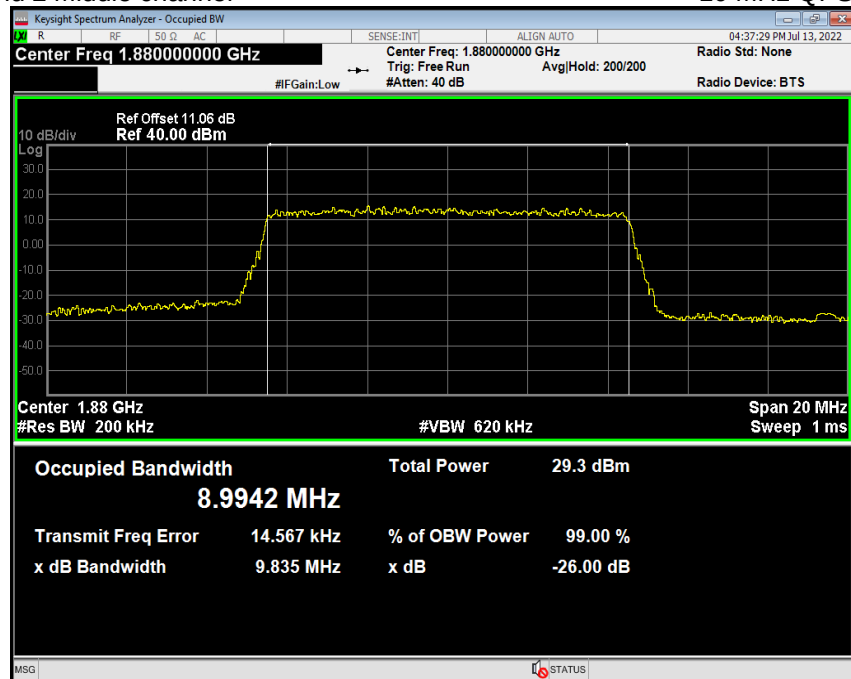
LTE Band 2 Lowest channel

10 MHz QPSK



LTE Band 2 Middle channel

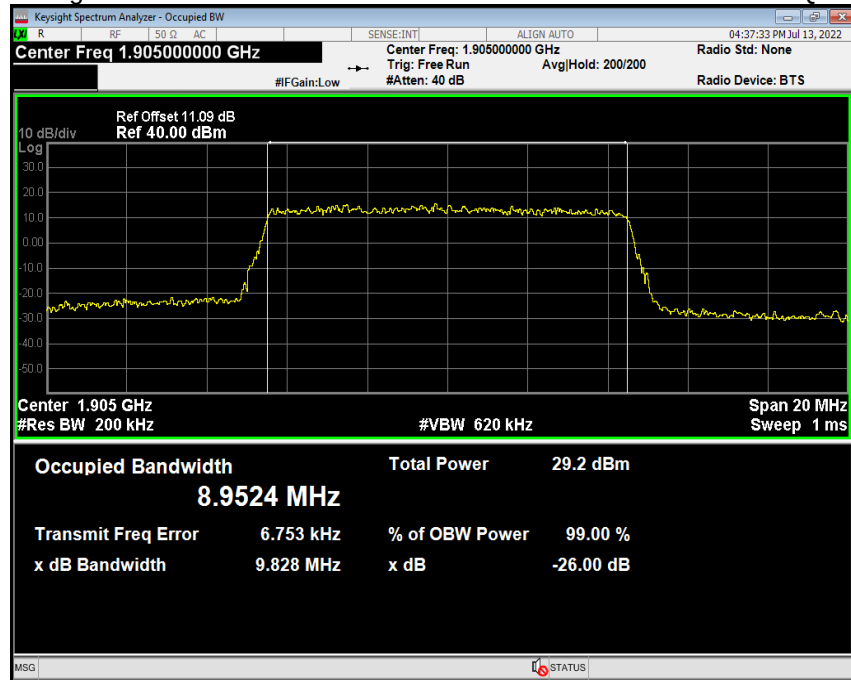
10 MHz QPSK





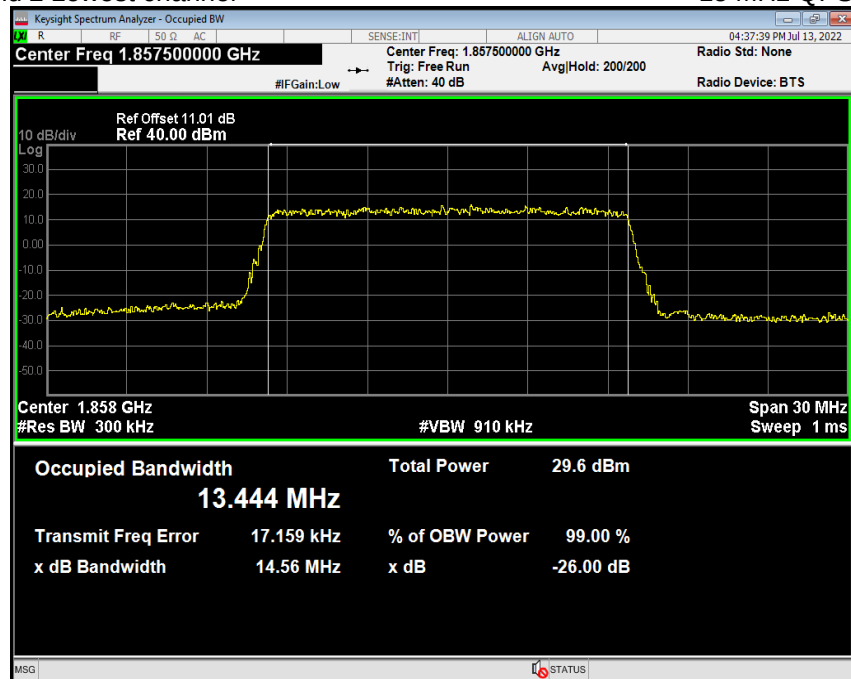
LTE Band 2 Highest channel:

10 MHz QPSK



LTE Band 2 Lowest channel

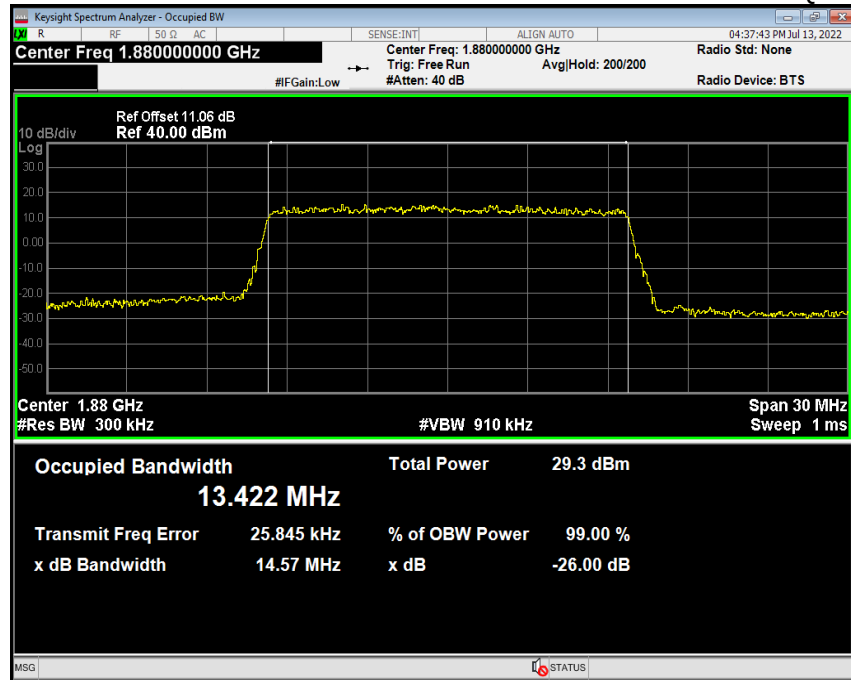
15 MHz QPSK





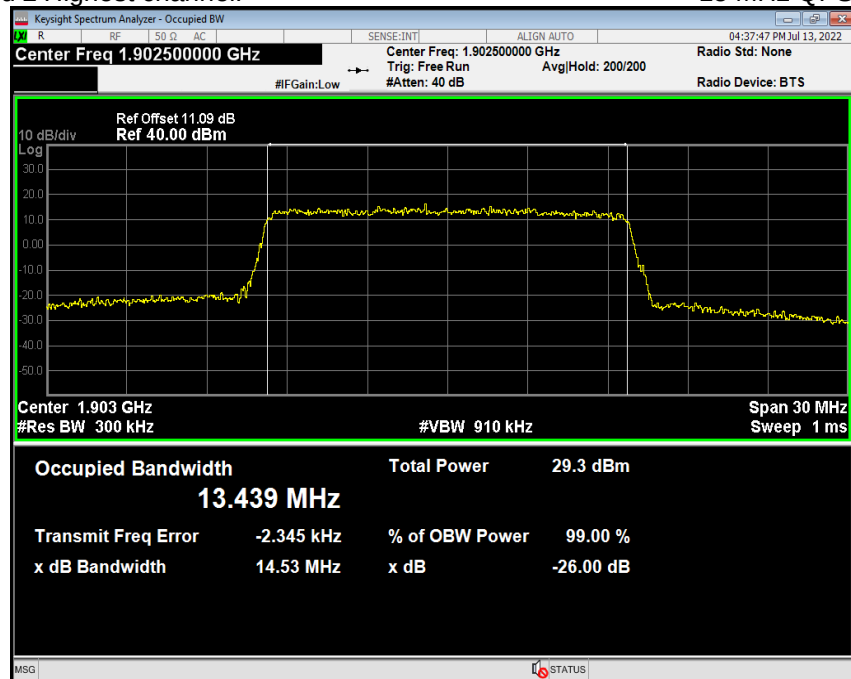
LTE Band 2 Middle channel

15 MHz QPSK



LTE Band 2 Highest channel:

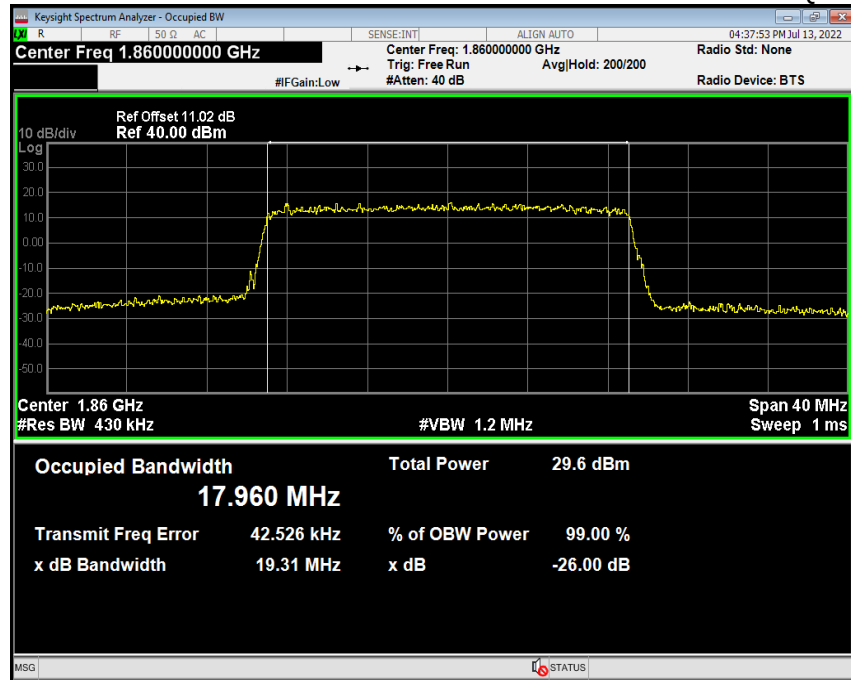
15 MHz QPSK





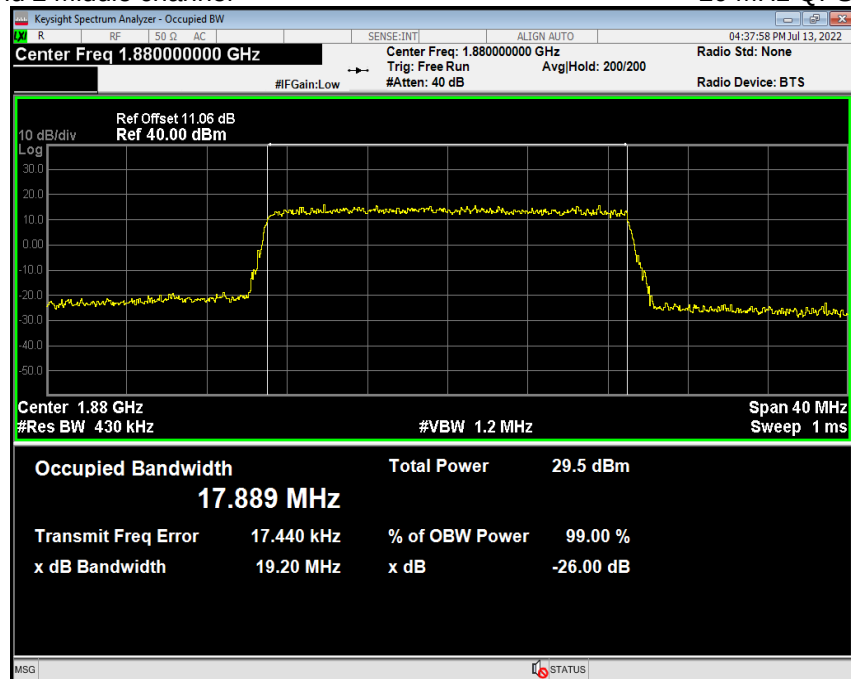
LTE Band 2 Lowest channel

20 MHz QPSK



LTE Band 2 Middle channel

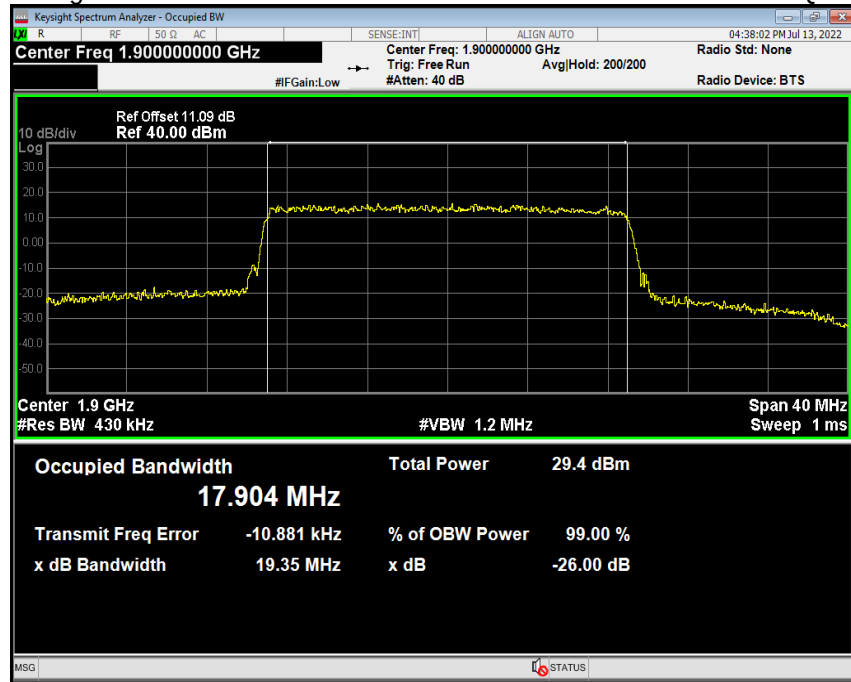
20 MHz QPSK





LTE Band 2 Highest channel:

20 MHz QPSK





1.2. Conducted Spurious Emissions

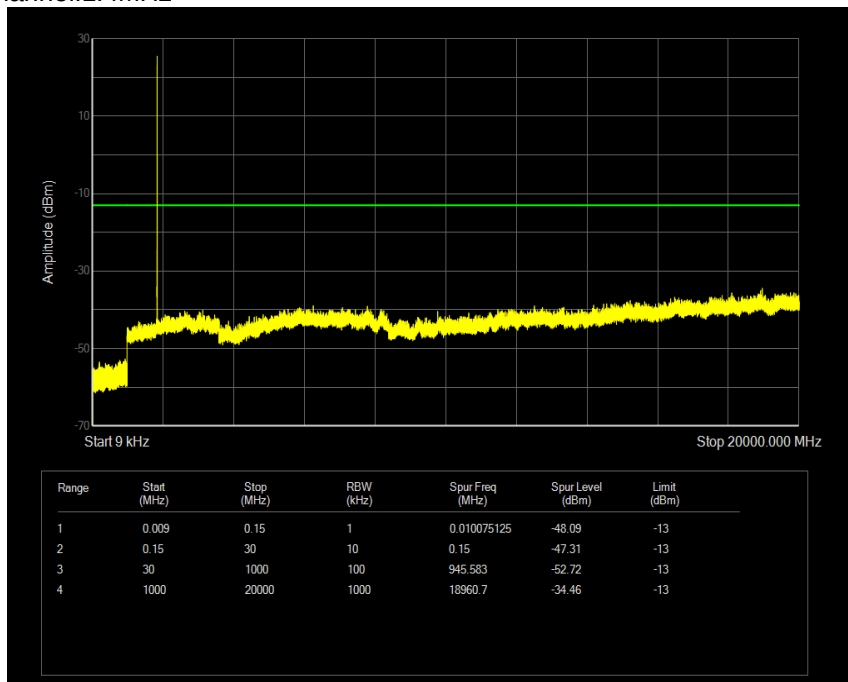
1.2.1. Test Result

The measurement frequency range is from 0.009MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

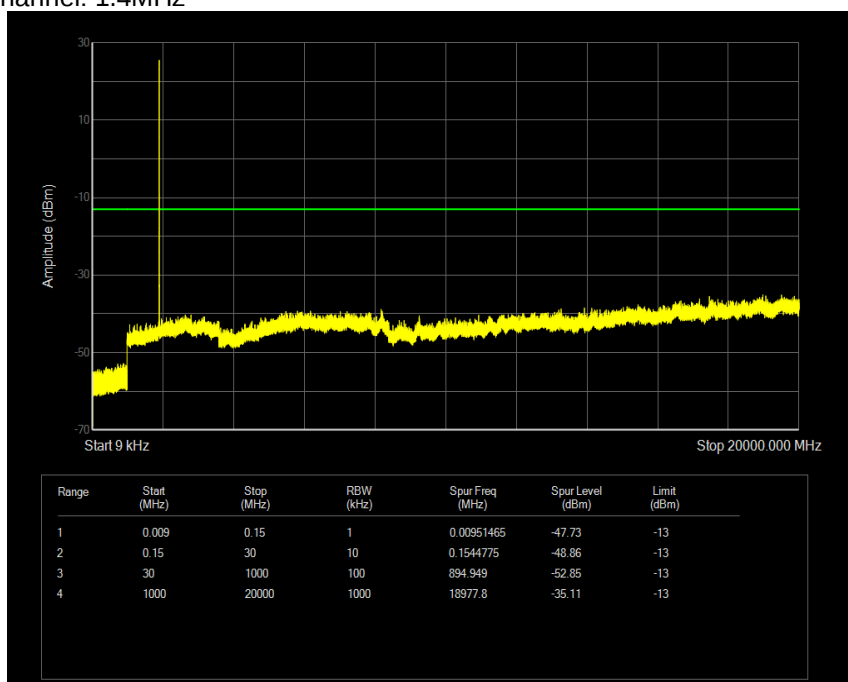
For LTE mode, the plot only show the QPSK, Lowest channel& Highest channel the worst data.

Pass, the table and plot please see annex.

LTE Band 2 Lowest channel:1.4MHz

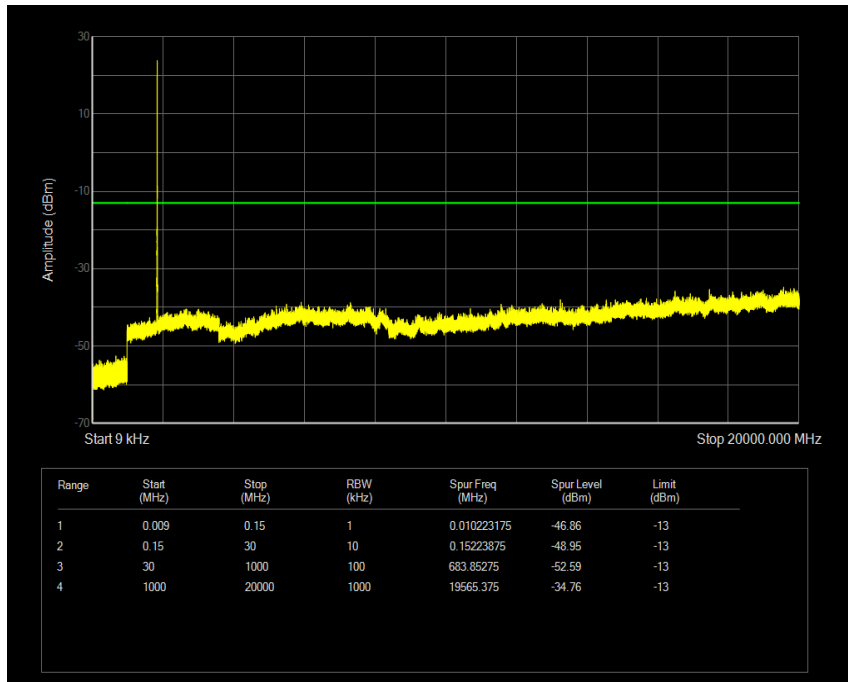


LTE Band 2 Highest channel: 1.4MHz

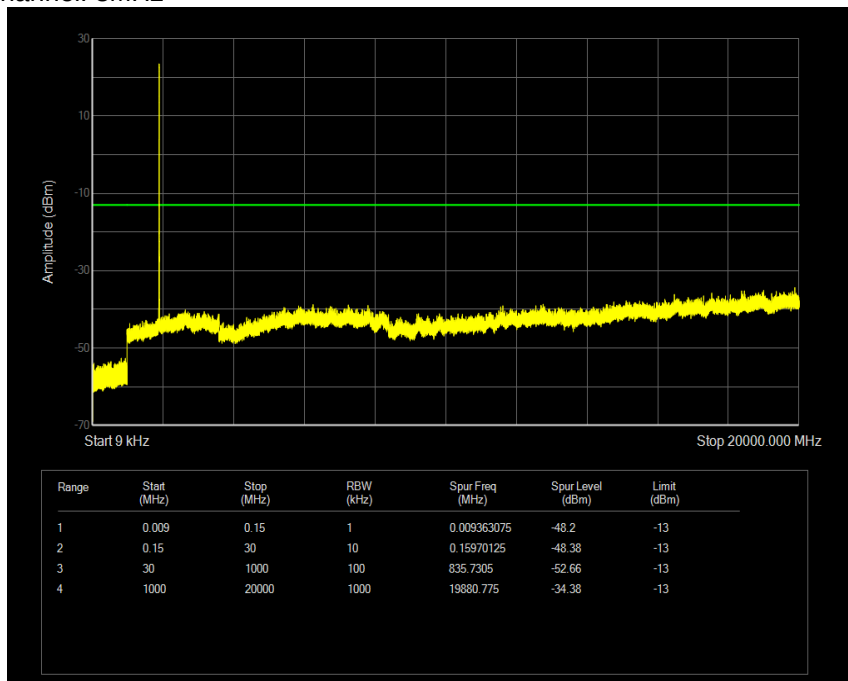




LTE Band 2 Lowest channel: 3MHz

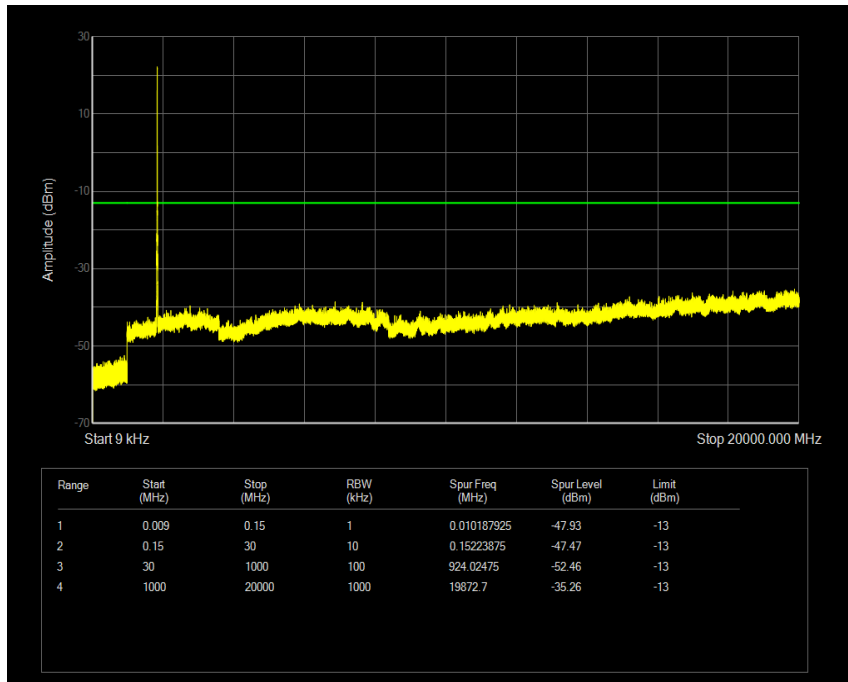


LTE Band 2 Highest channel: 3MHz

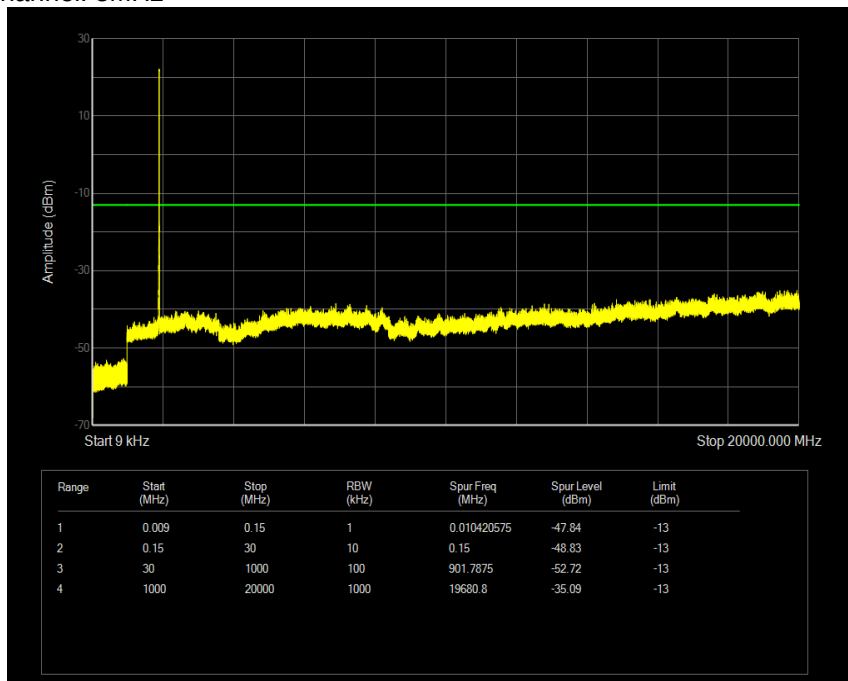




LTE Band 2 Lowest channel:5MHz

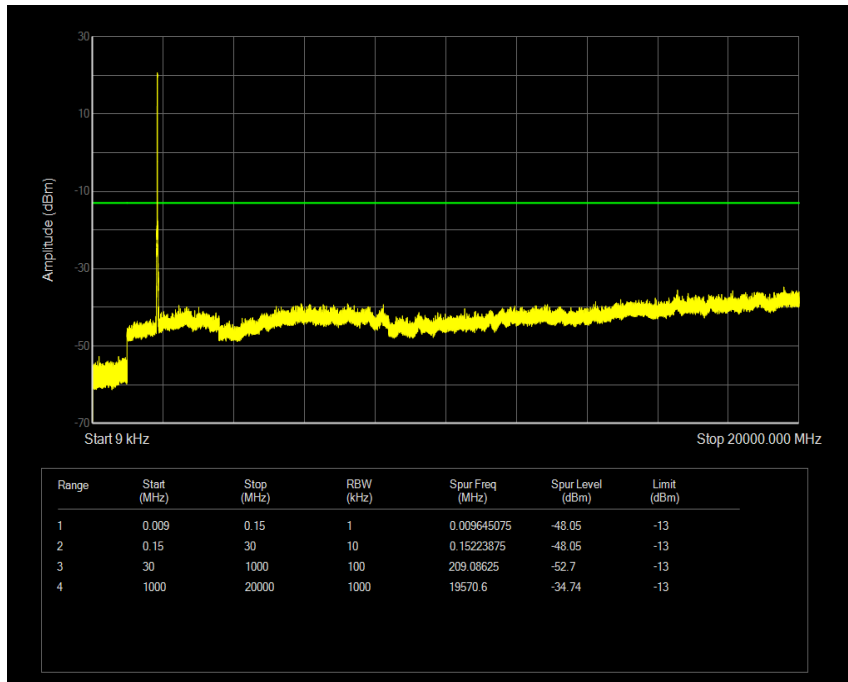


LTE Band 2 Highest channel: 5MHz

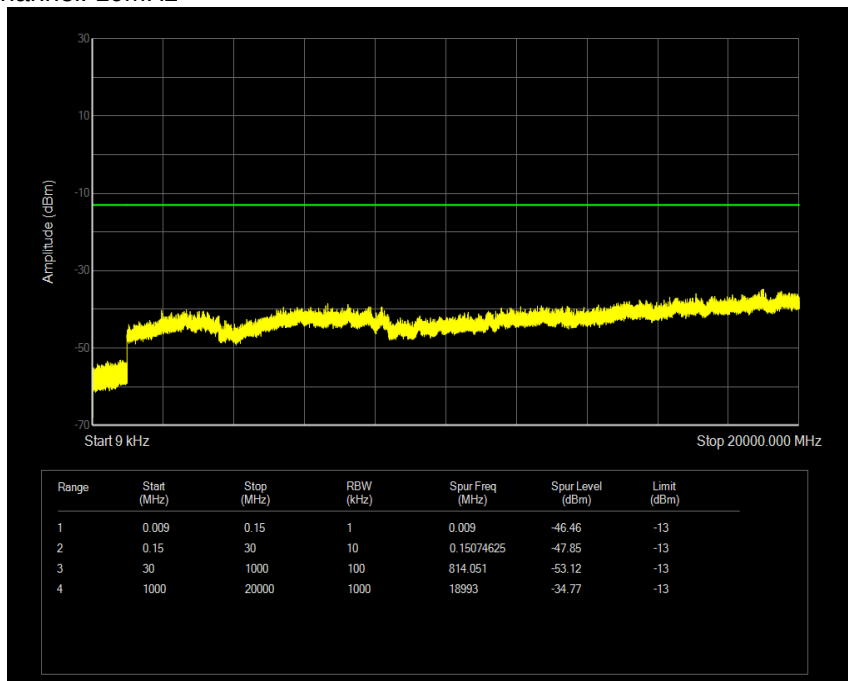




LTE Band 2 Lowest channel:10MHz

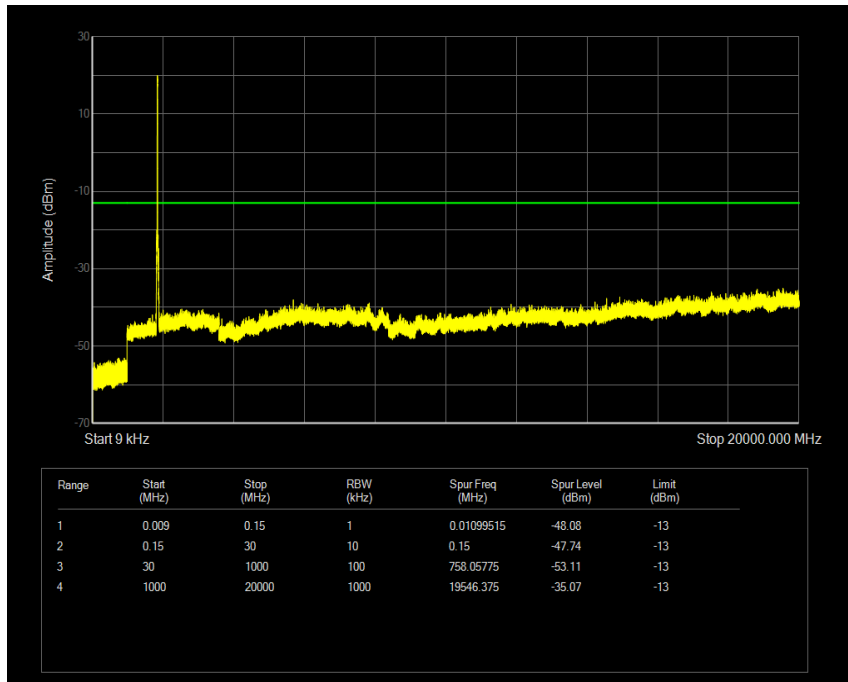


LTE Band 2 Highest channel: 10MHz

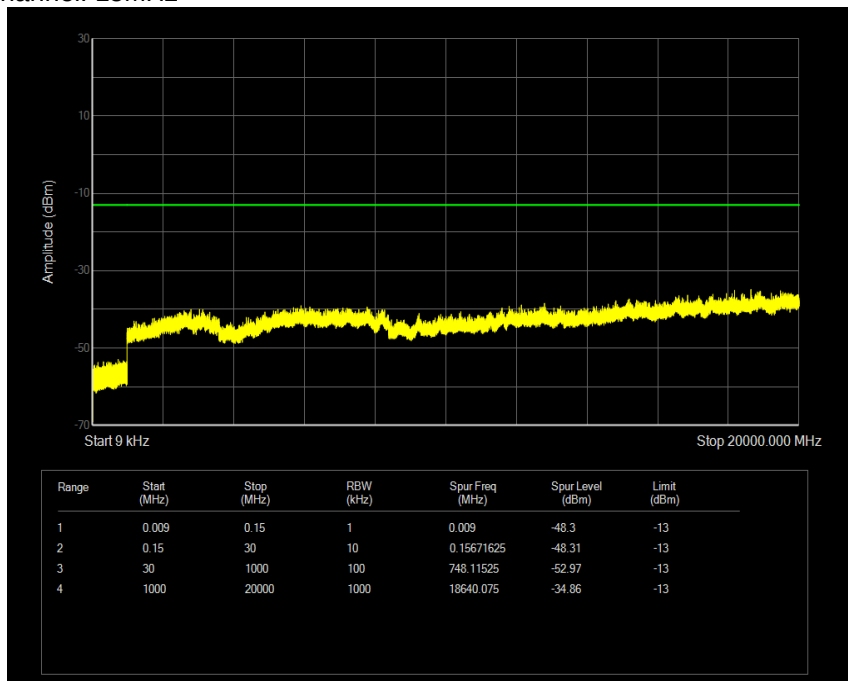




LTE Band 2 Lowest channel:15MHz

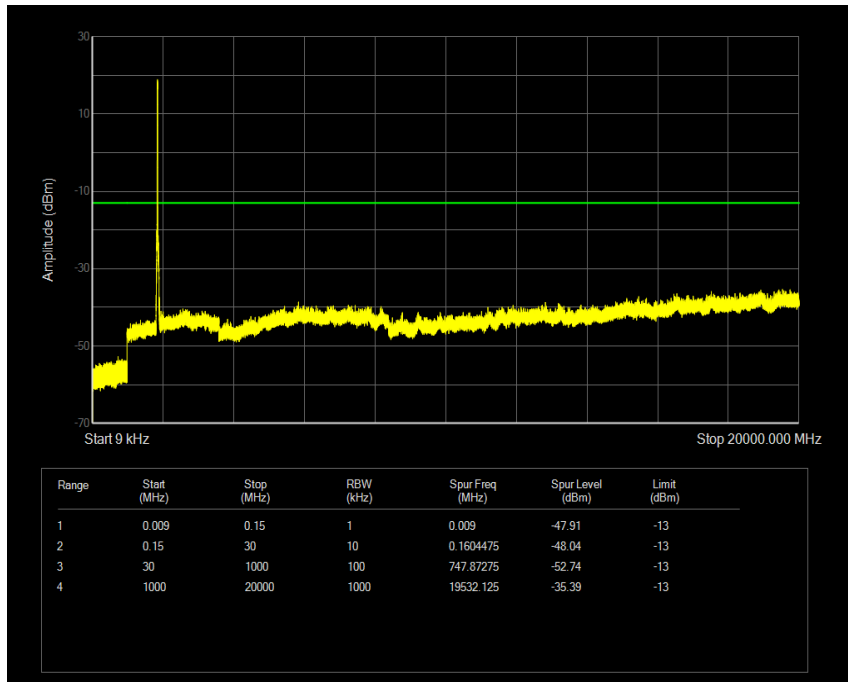


LTE Band 2 Highest channel: 15MHz

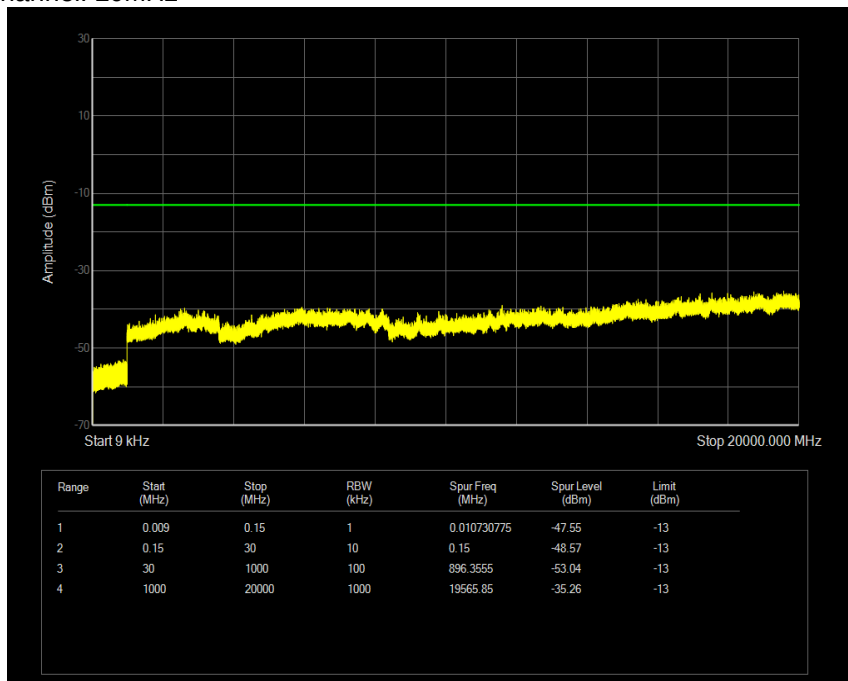




LTE Band 2 Lowest channel:20MHz



LTE Band 2 Highest channel: 20MHz





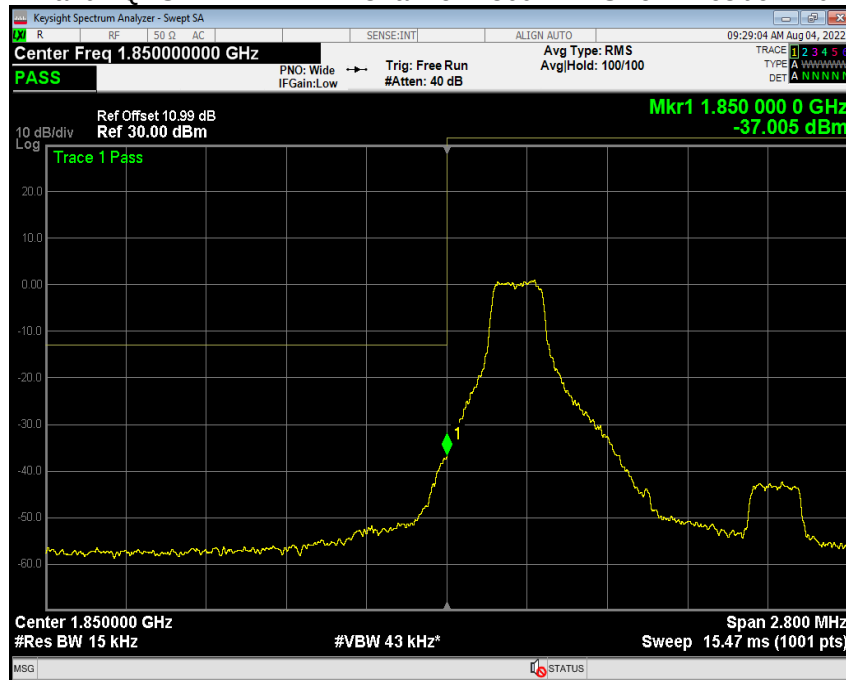
1.3. Conducted Out of Band Emissions

1.3.1. Test Result

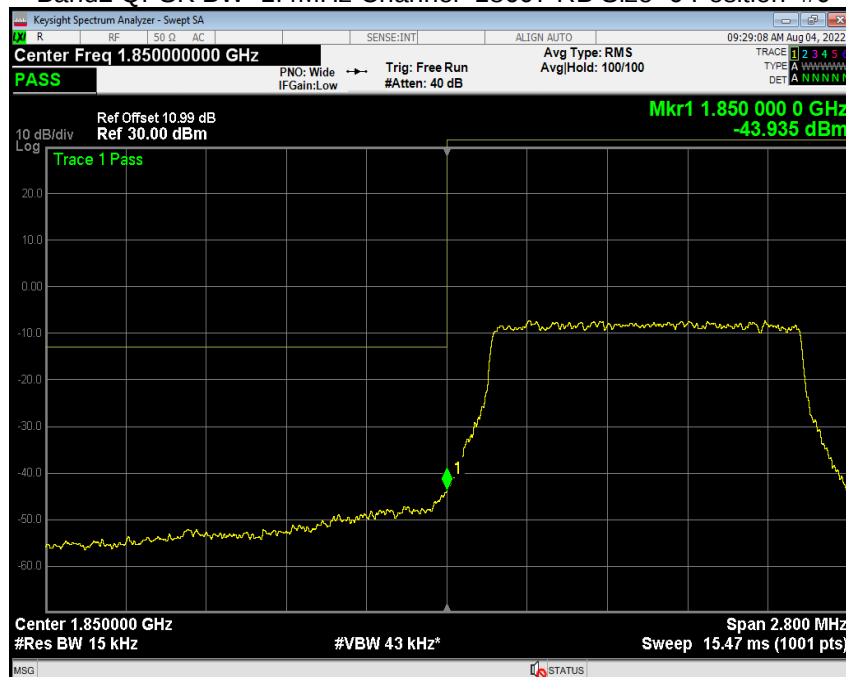
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

LTE Category is Cat1, So the bandwidth 10M/15M/20M does not support QAM16.

Band2 QPSK BW=1.4MHz Channel=18607 RB Size=1 Position=#0

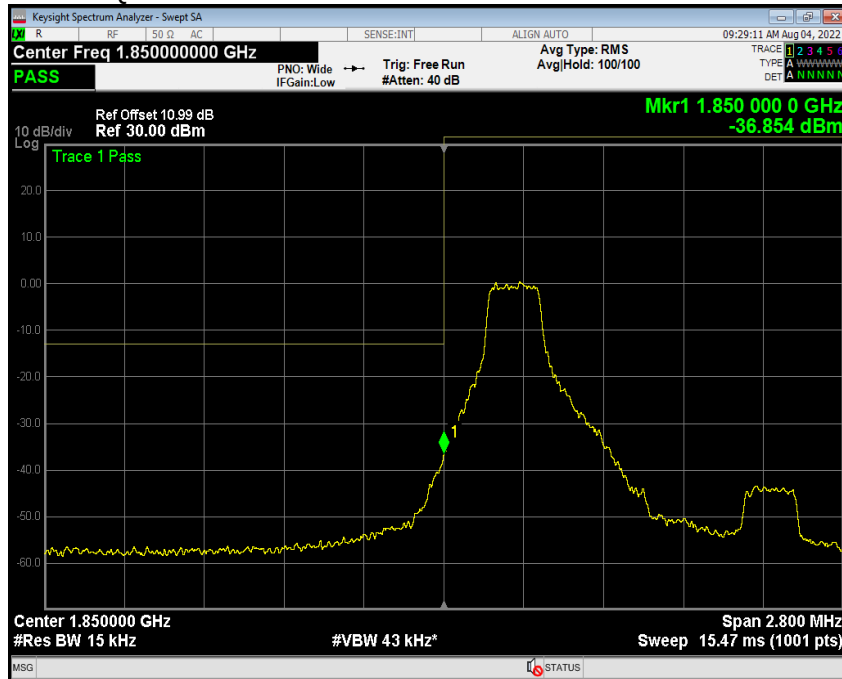


Band2 QPSK BW=1.4MHz Channel=18607 RB Size=6 Position=#0

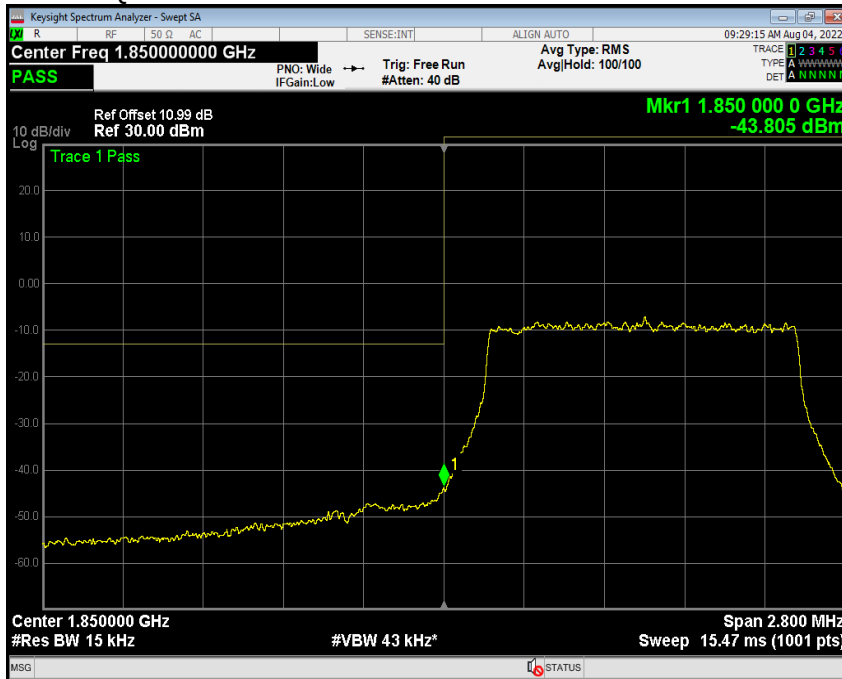




Band2 QAM16 BW=1.4MHz Channel=18607 RB Size=1 Position=#0

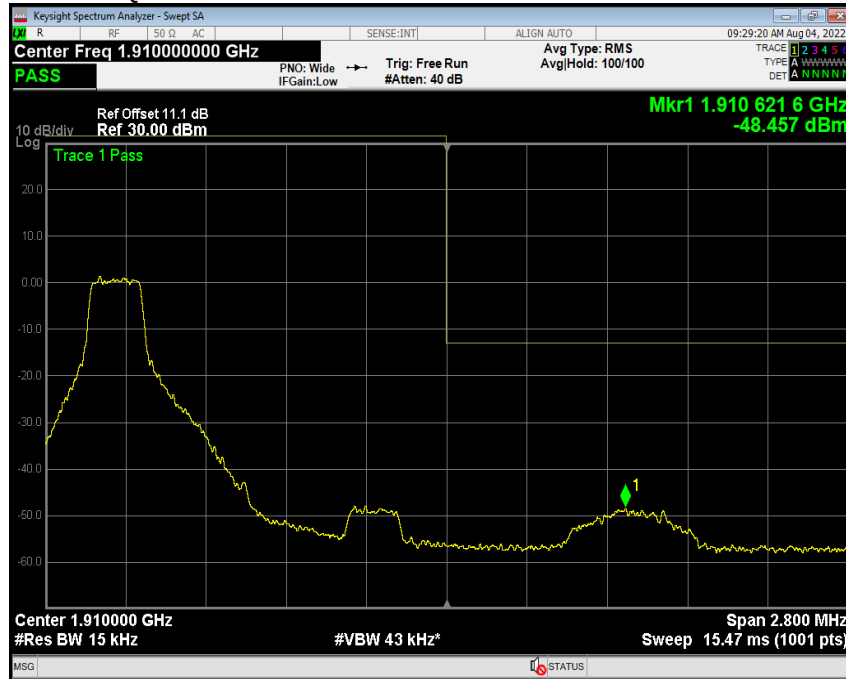


Band2 QAM16 BW=1.4MHz Channel=18607 RB Size=6 Position=#0





Band2 QPSK BW=1.4MHz Channel=19193 RB Size=1 Position=#0

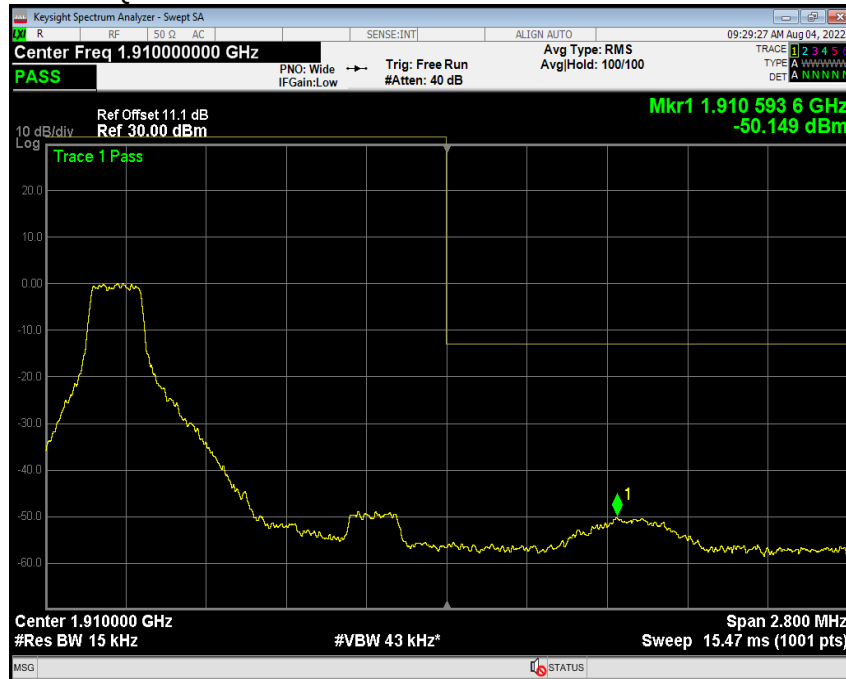


Band2 QPSK BW=1.4MHz Channel=19193 RB Size=6 Position=#0





Band2 QAM16 BW=1.4MHz Channel=19193 RB Size=1 Position=#0

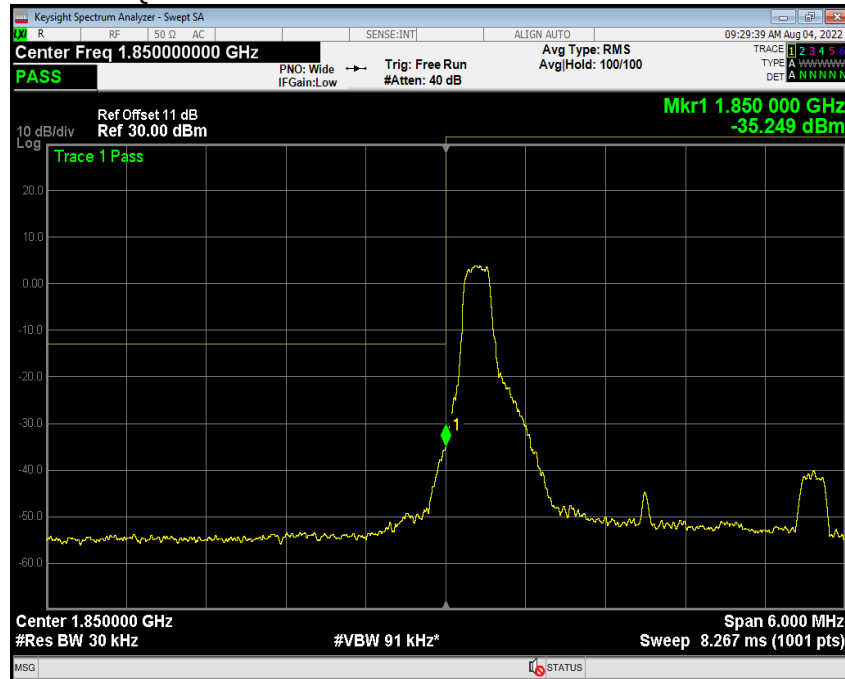


Band2 QAM16 BW=1.4MHz Channel=19193 RB Size=6 Position=#0

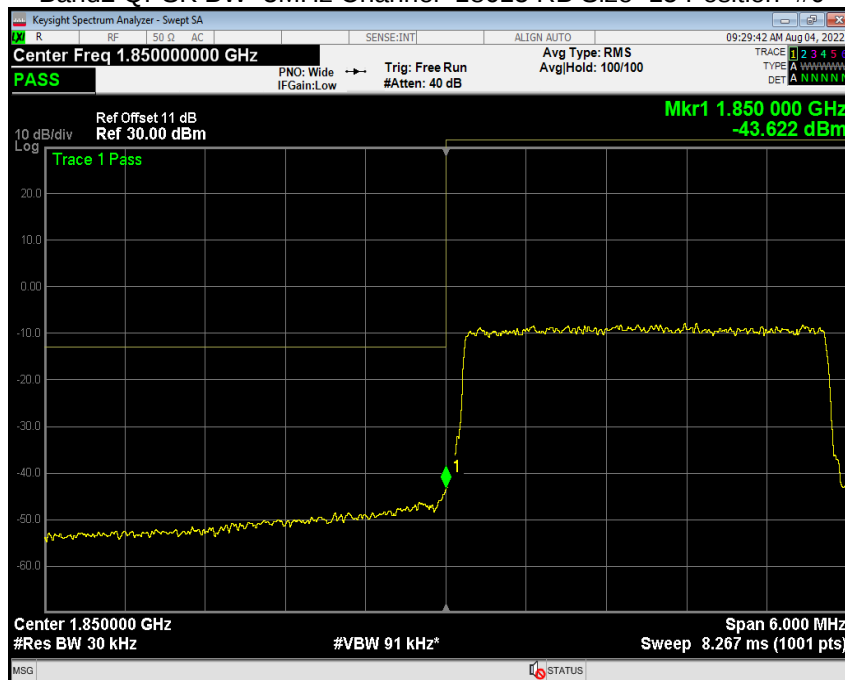




Band2 QPSK BW=3MHz Channel=18615 RB Size=1 Position=#0

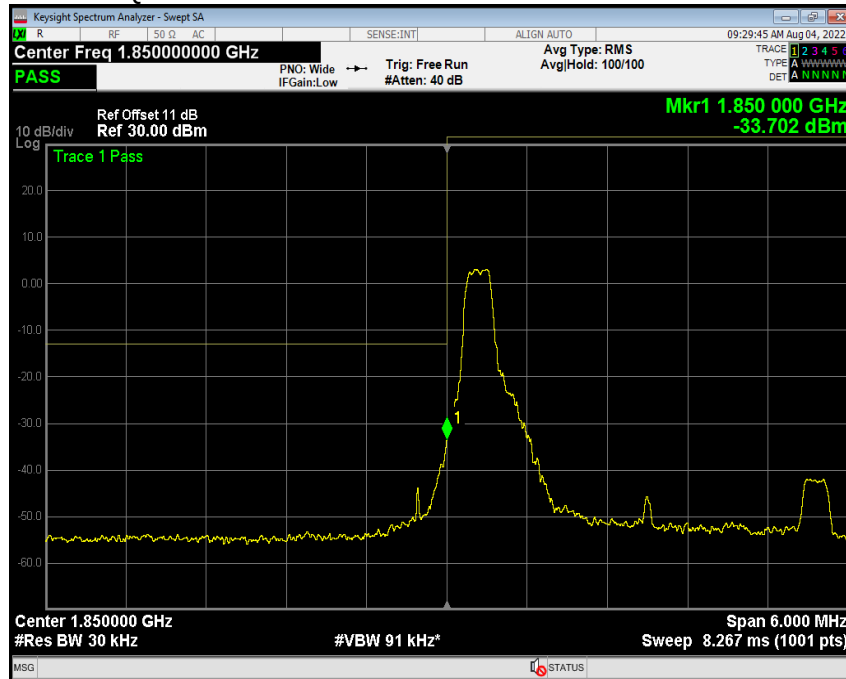


Band2 QPSK BW=3MHz Channel=18615 RB Size=15 Position=#0

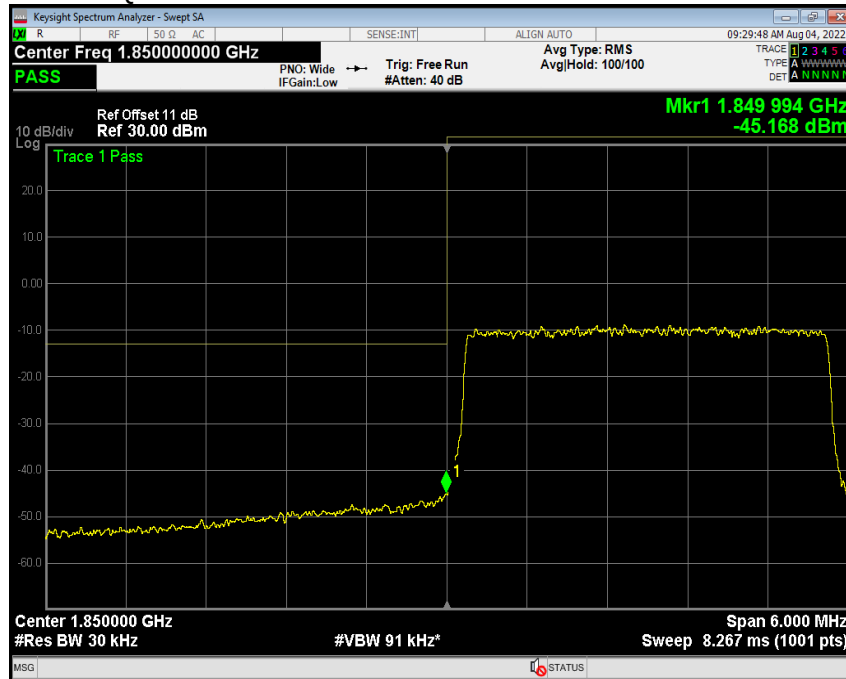




Band2 QAM16 BW=3MHz Channel=18615 RB Size=1 Position=#0

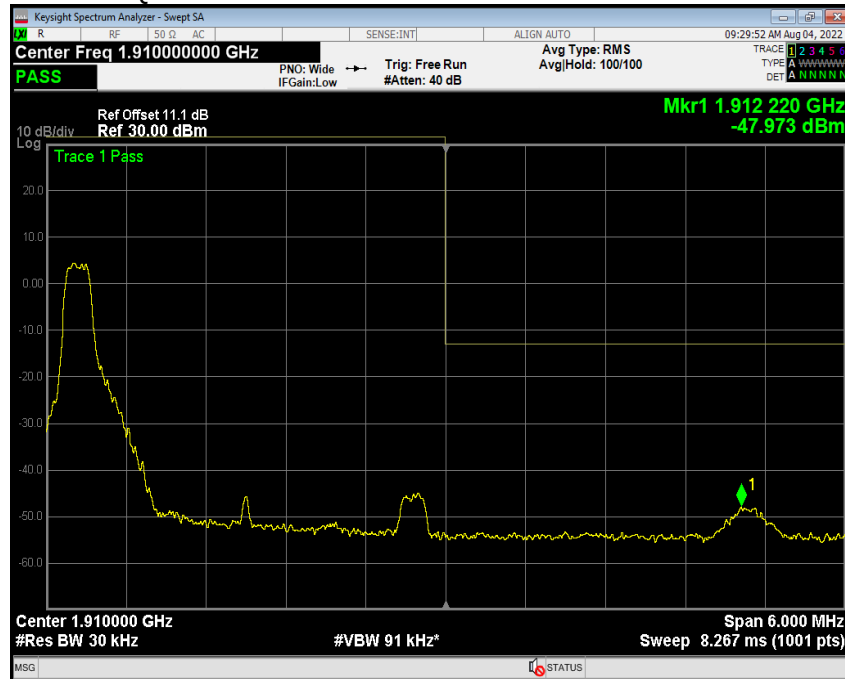


Band2 QAM16 BW=3MHz Channel=18615 RB Size=15 Position=#0

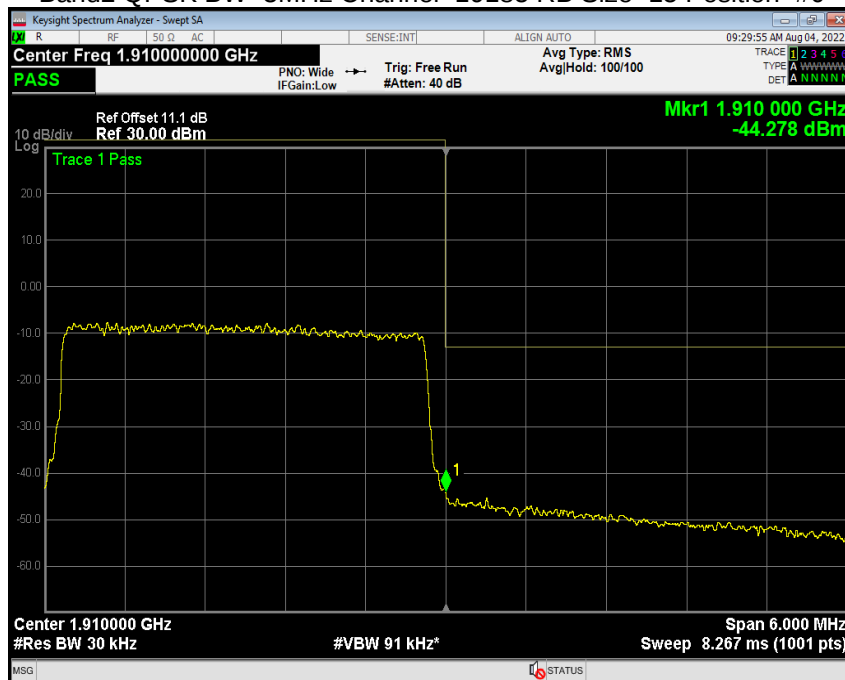




Band2 QPSK BW=3MHz Channel=19185 RB Size=1 Position=#0

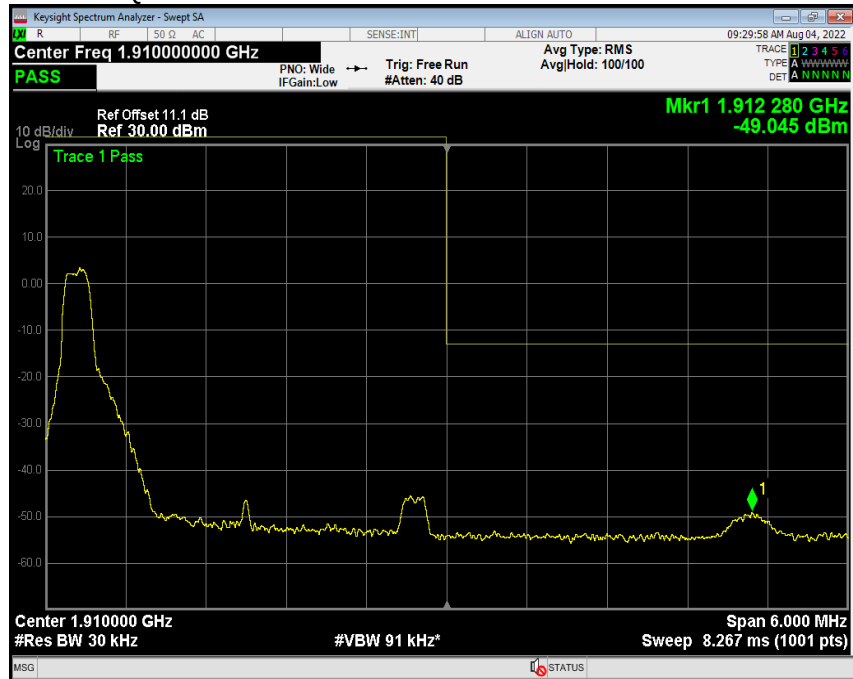


Band2 QPSK BW=3MHz Channel=19185 RB Size=15 Position=#0

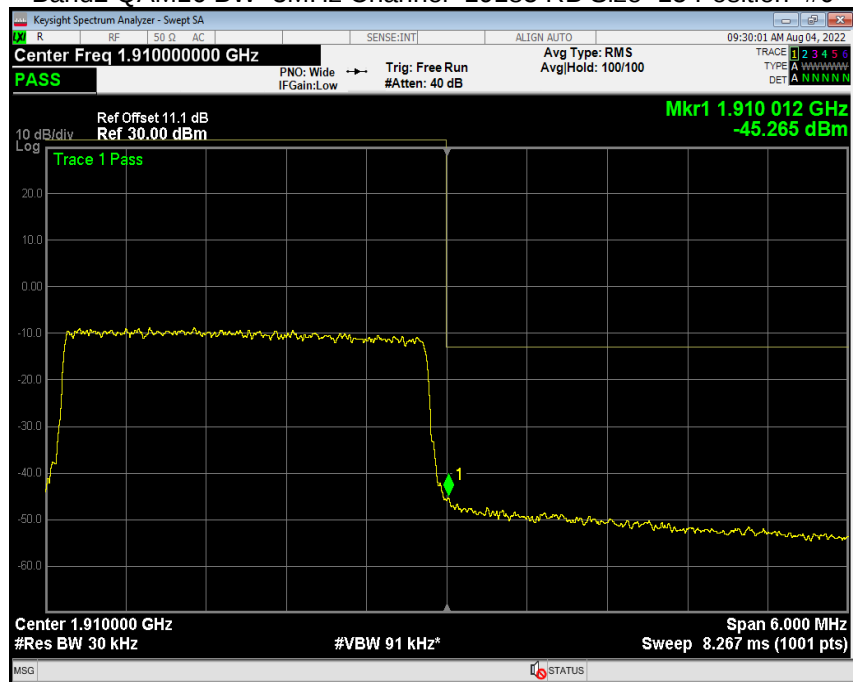




Band2 QAM16 BW=3MHz Channel=19185 RB Size=1 Position=#0

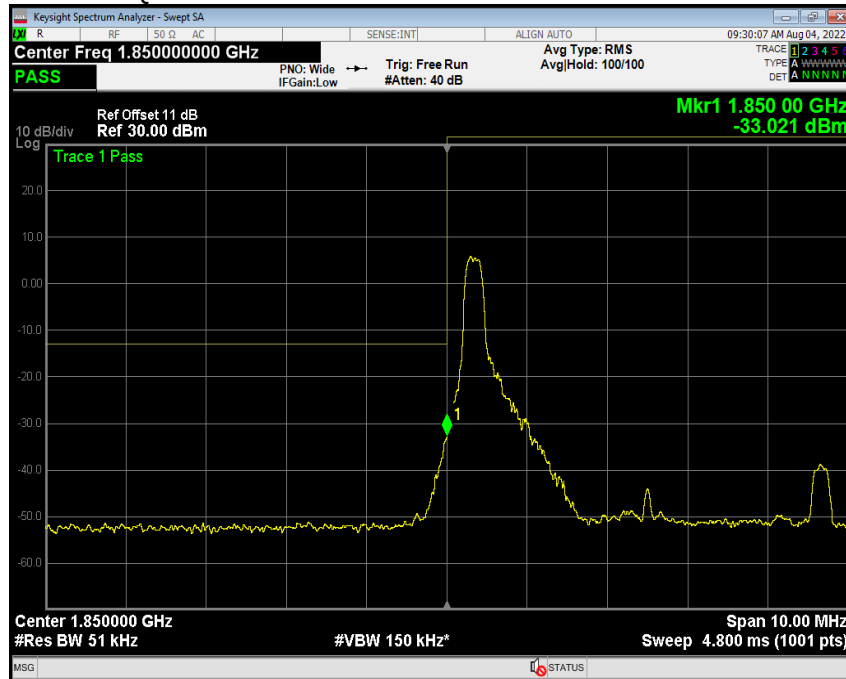


Band2 QAM16 BW=3MHz Channel=19185 RB Size=15 Position=#0

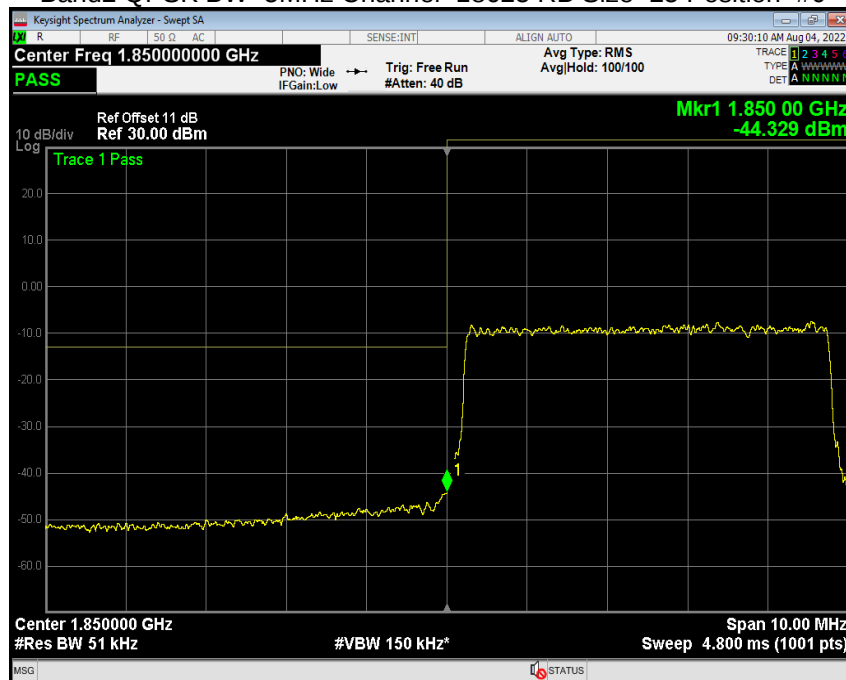




Band2 QPSK BW=5MHz Channel=18625 RB Size=1 Position=#0

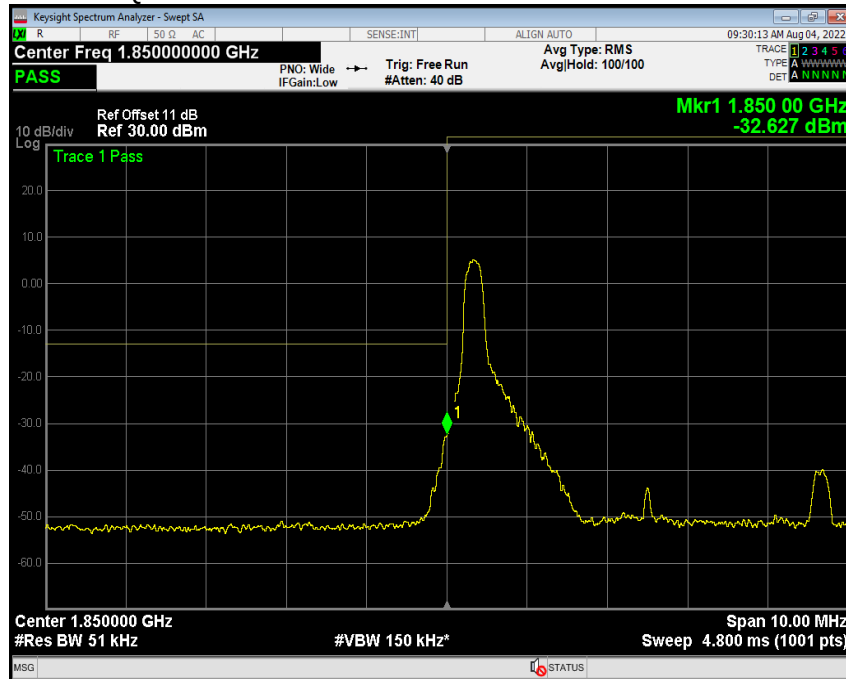


Band2 QPSK BW=5MHz Channel=18625 RB Size=25 Position=#0

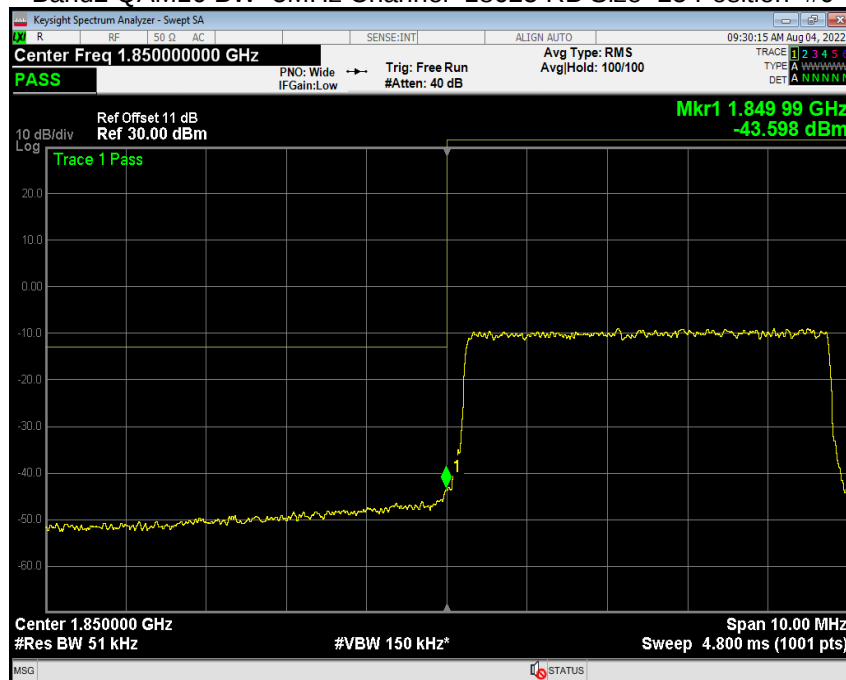




Band2 QAM16 BW=5MHz Channel=18625 RB Size=1 Position=#0

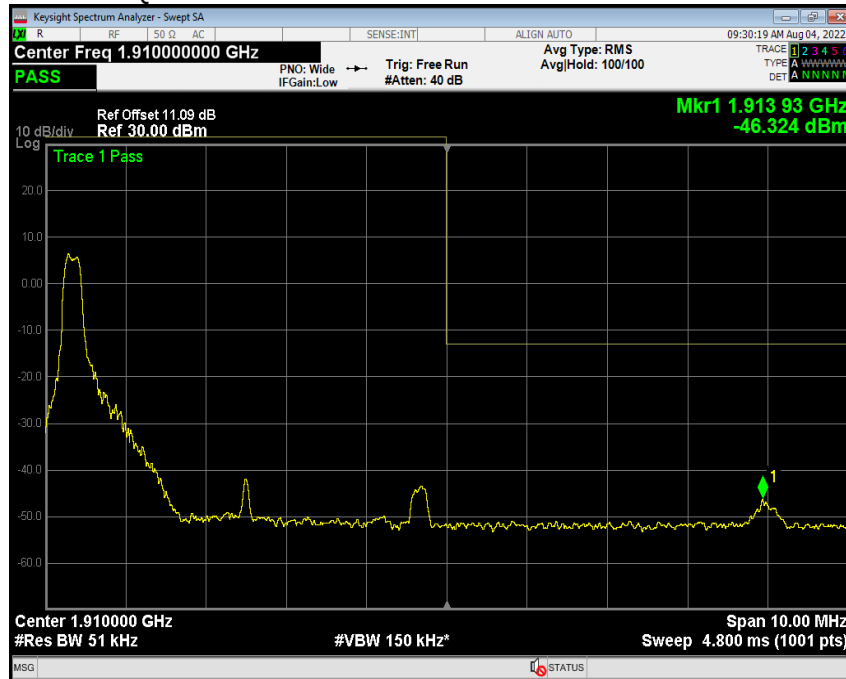


Band2 QAM16 BW=5MHz Channel=18625 RB Size=25 Position=#0

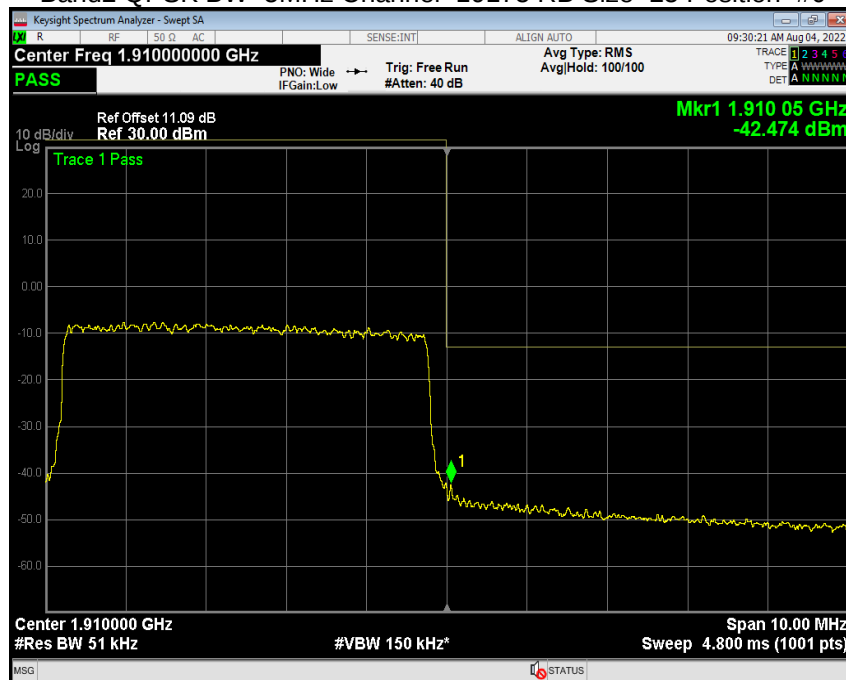




Band2 QPSK BW=5MHz Channel=19175 RB Size=1 Position=#0

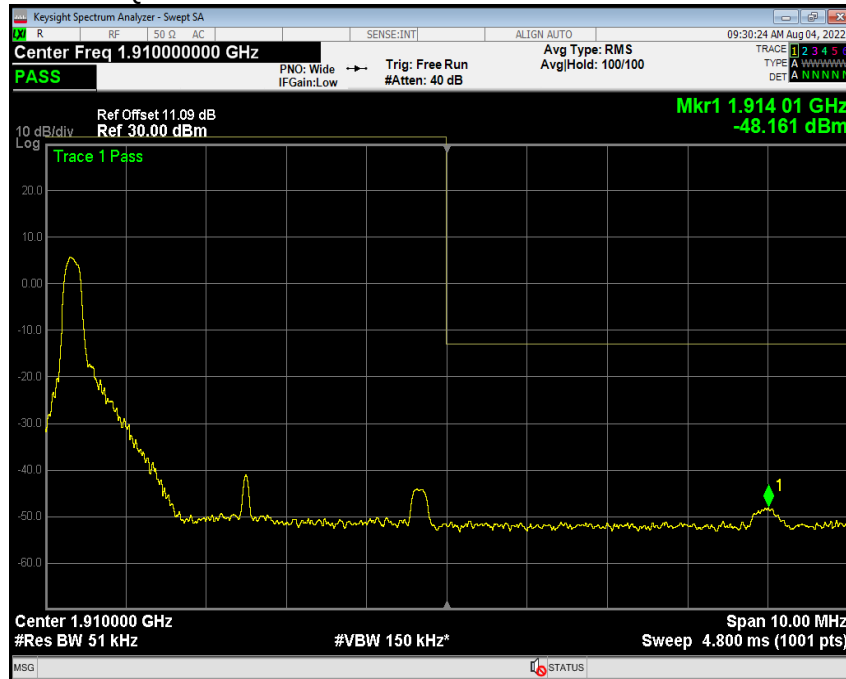


Band2 QPSK BW=5MHz Channel=19175 RB Size=25 Position=#0

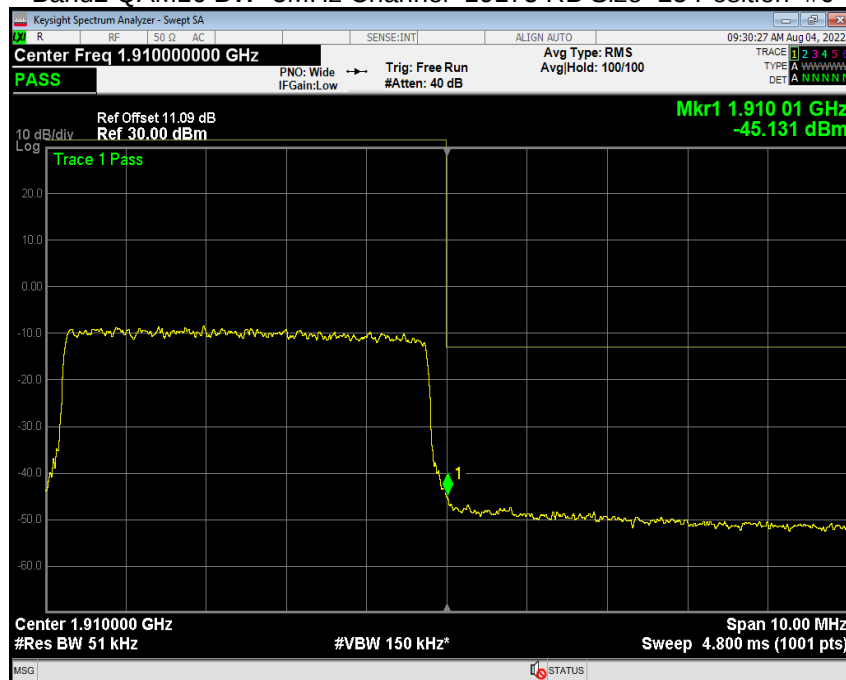




Band2 QAM16 BW=5MHz Channel=19175 RB Size=1 Position=#0

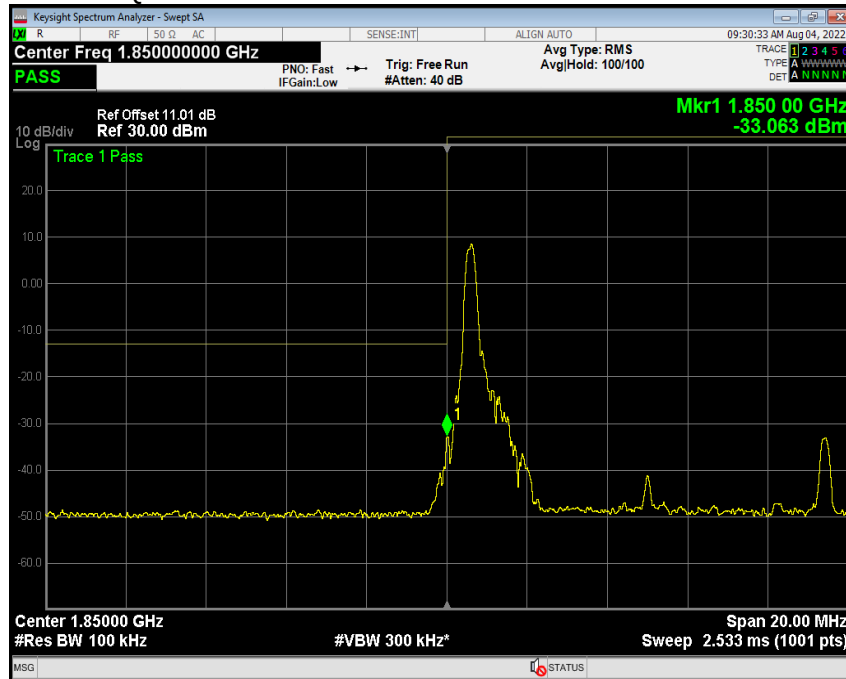


Band2 QAM16 BW=5MHz Channel=19175 RB Size=25 Position=#0

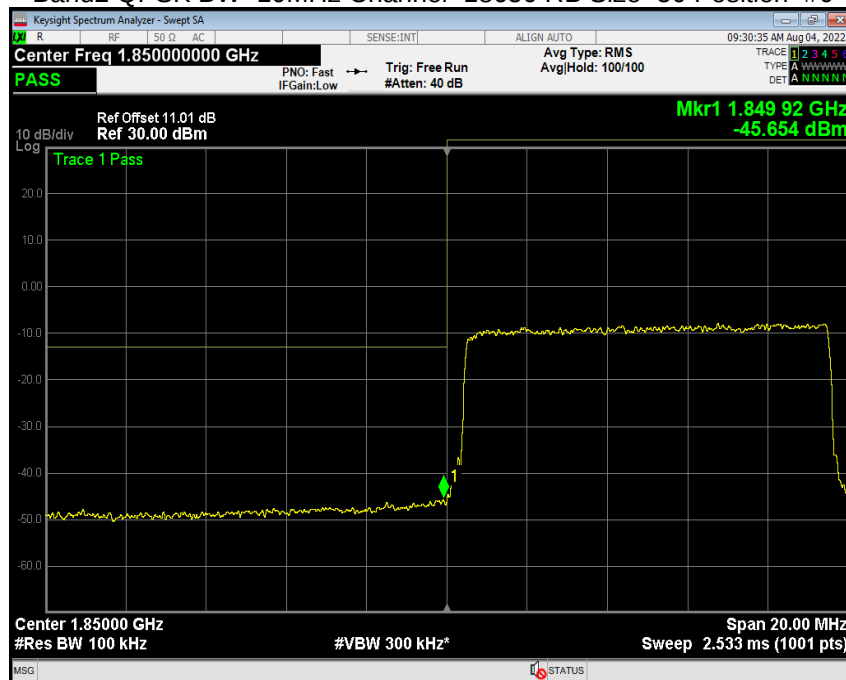




Band2 QPSK BW=10MHz Channel=18650 RB Size=1 Position=#0

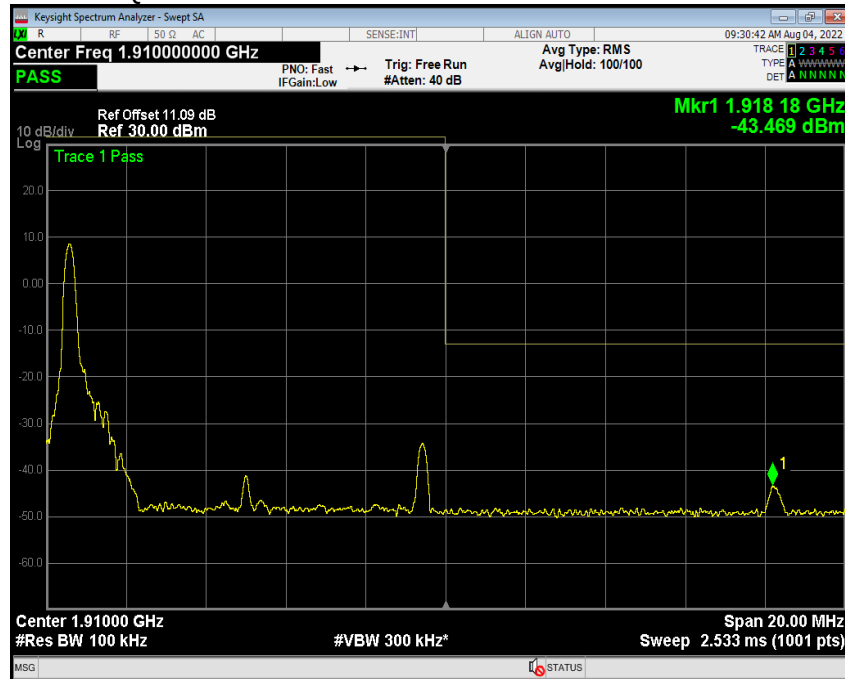


Band2 QPSK BW=10MHz Channel=18650 RB Size=50 Position=#0

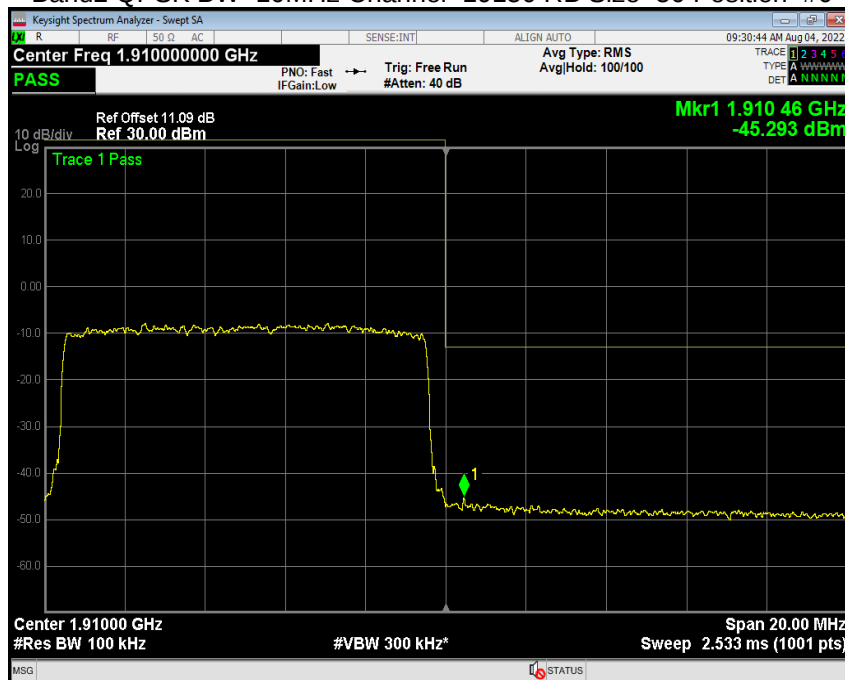




Band2 QPSK BW=10MHz Channel=19150 RB Size=1 Position=#0

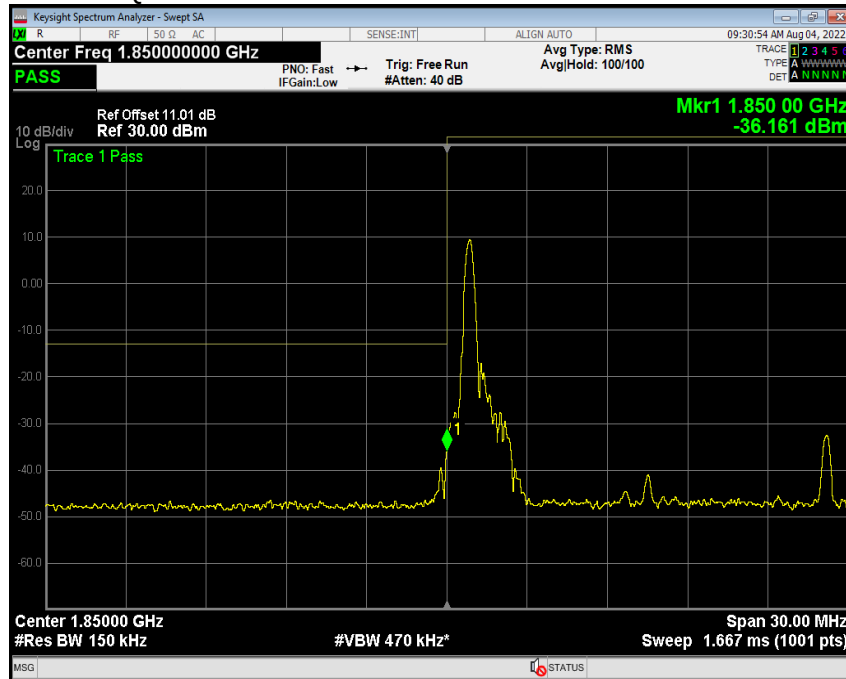


Band2 QPSK BW=10MHz Channel=19150 RB Size=50 Position=#0

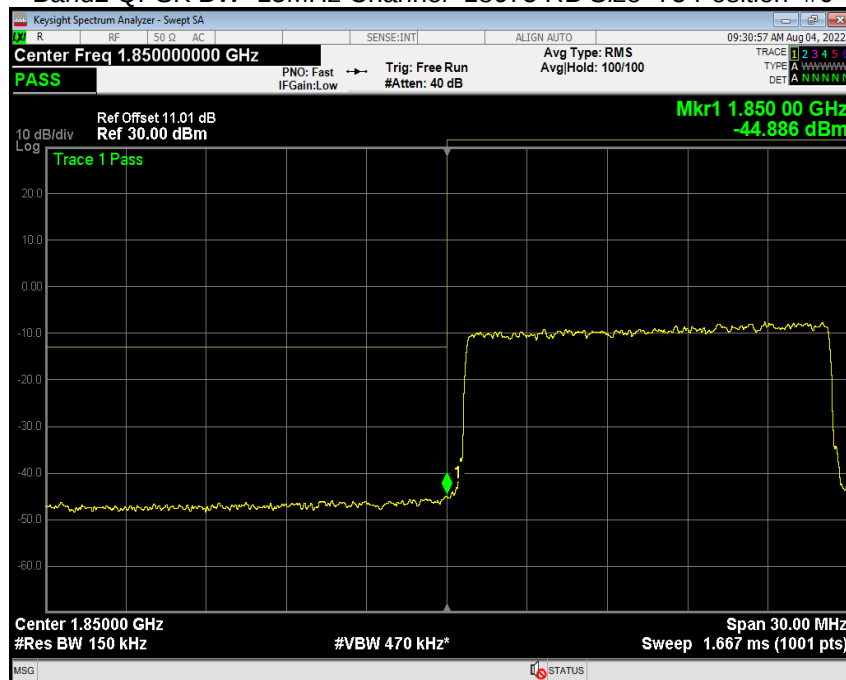




Band2 QPSK BW=15MHz Channel=18675 RB Size=1 Position=#0

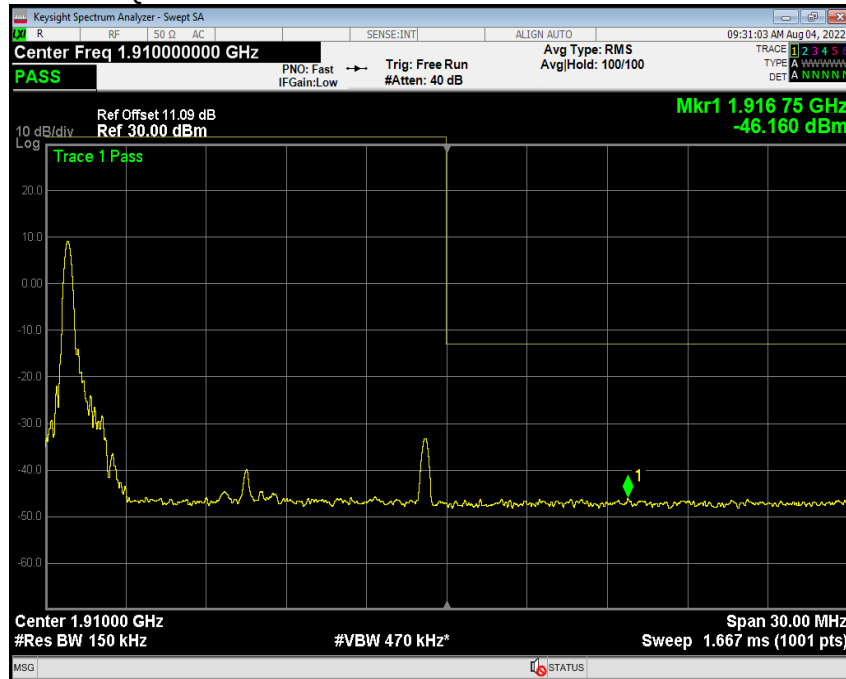


Band2 QPSK BW=15MHz Channel=18675 RB Size=75 Position=#0

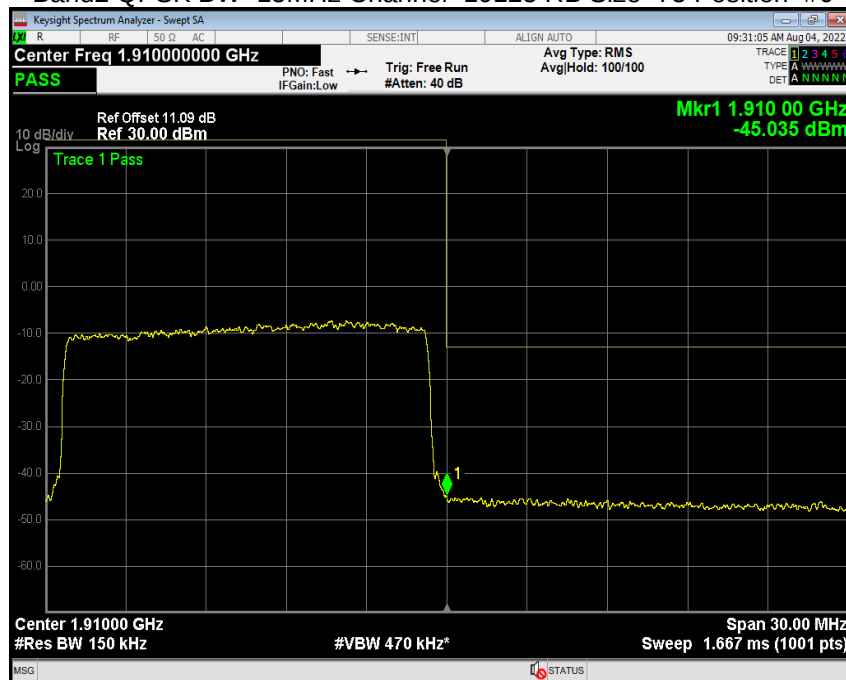




Band2 QPSK BW=15MHz Channel=19125 RB Size=1 Position=#0

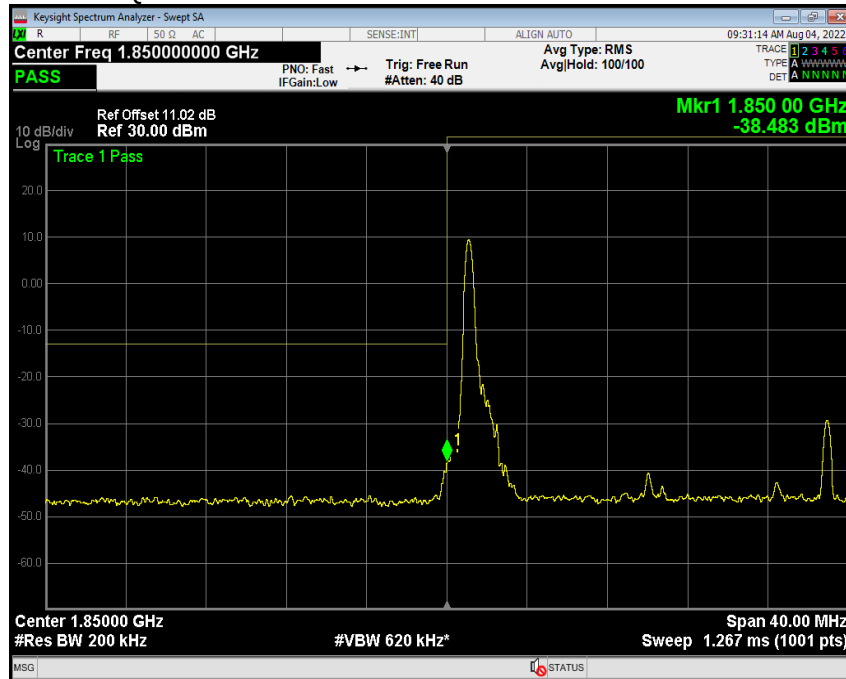


Band2 QPSK BW=15MHz Channel=19125 RB Size=75 Position=#0

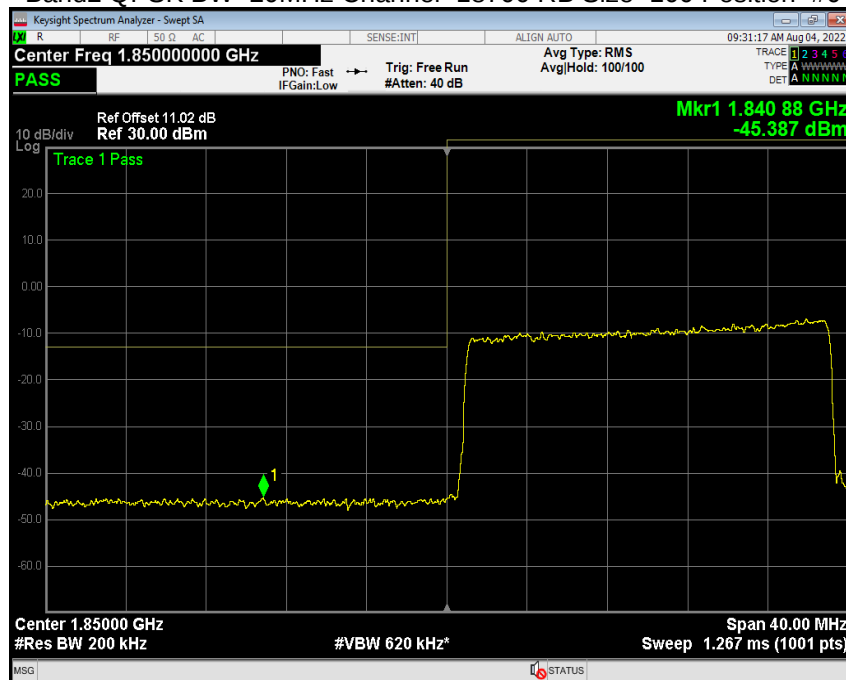




Band2 QPSK BW=20MHz Channel=18700 RB Size=1 Position=#0

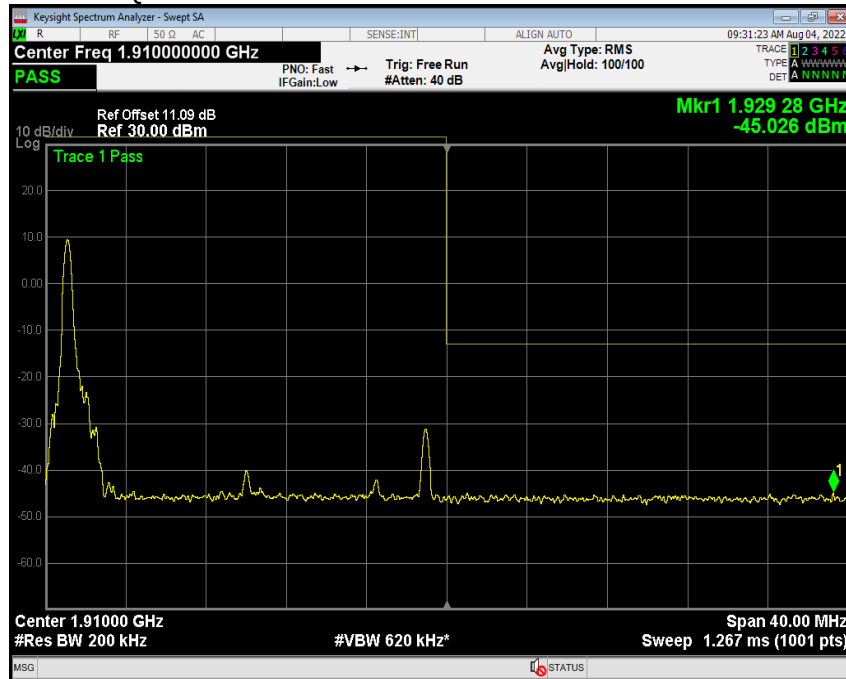


Band2 QPSK BW=20MHz Channel=18700 RB Size=100 Position=#0

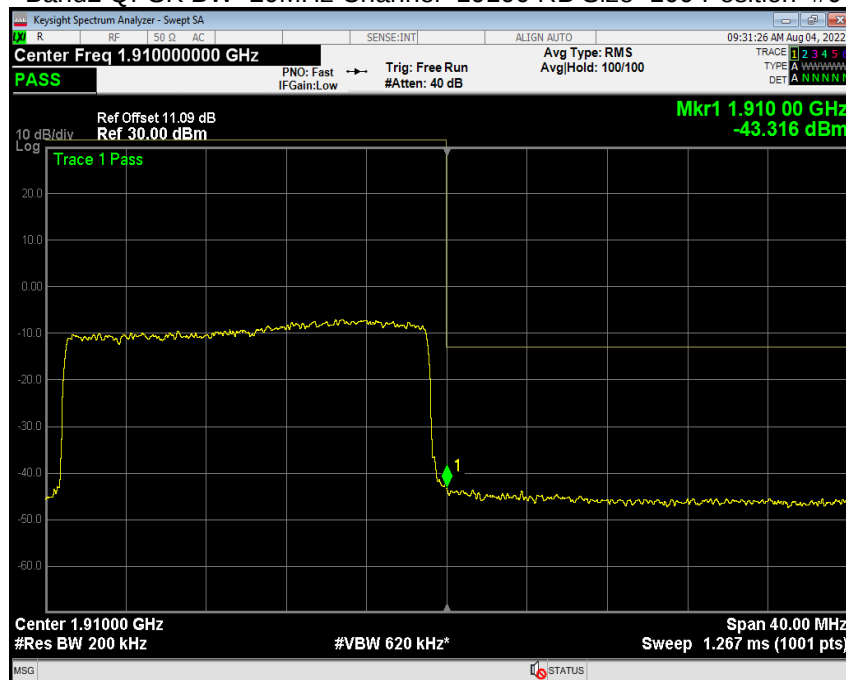




Band2 QPSK BW=20MHz Channel=19100 RB Size=1 Position=#0



Band2 QPSK BW=20MHz Channel=19100 RB Size=100 Position=#0



***** END *****