



FCC Test Report

ANNEX 1 LTE BAND 4

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.



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**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 4 1.4 MHz	QPSK	1710.7	1.090	1.280
	QAM16	1710.7	1.096	1.283
	QPSK	1732.5	1.096	1.323
	QAM16	1732.5	1.093	1.263
	QPSK	1754.3	1.104	1.279
	QAM16	1754.3	1.096	1.304
LTE Band 4 3 MHz	QPSK	1711.5	2.705	2.950
	QAM16	1711.5	2.689	2.981
	QPSK	1732.5	2.698	2.982
	QAM16	1732.5	2.699	2.970
	QPSK	1753.5	2.705	2.997
	QAM16	1753.5	2.703	3.013
LTE Band 4 5 MHz	QPSK	1712.5	4.514	4.941
	QAM16	1712.5	4.509	5.009
	QPSK	1732.5	4.511	4.987
	QAM16	1732.5	4.513	4.983
	QPSK	1752.5	4.511	4.998
	QAM16	1752.5	4.527	4.936
LTE Band 4 10 MHz	QPSK	1715.0	8.963	9.774
	QPSK	1732.5	8.951	9.736
	QPSK	1750.0	8.999	9.847
LTE Band 4 15MHz	QPSK	1717.5	13.429	14.759
	QPSK	1732.5	13.365	14.571
	QPSK	1747.5	13.433	14.580
LTE Band 4 20MHz	QPSK	1720.0	17.898	19.258
	QPSK	1732.5	17.851	19.178
	QPSK	1745.0	17.948	19.379

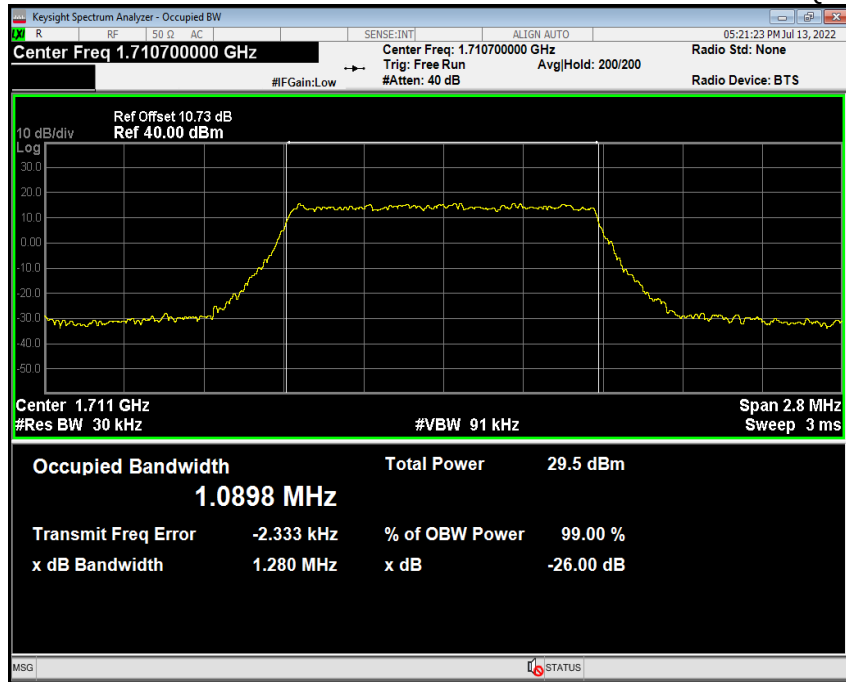
Note: Measurement Uncertainty: $\pm 20\text{Hz}$.

Test plot as follows:



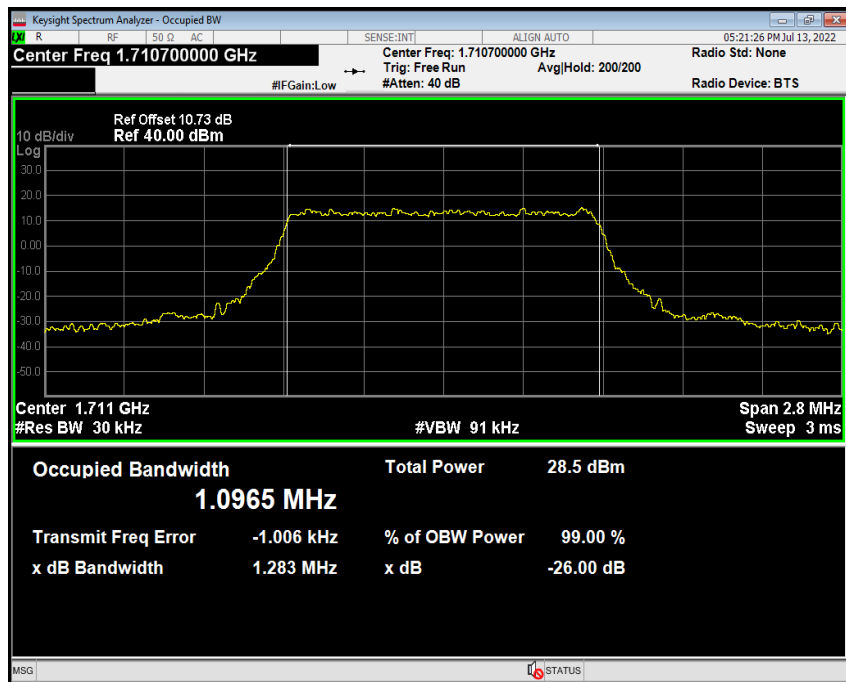
LTE Band 4 Lowest channel

1.4 MHz QPSK



LTE Band 4 Lowest channel

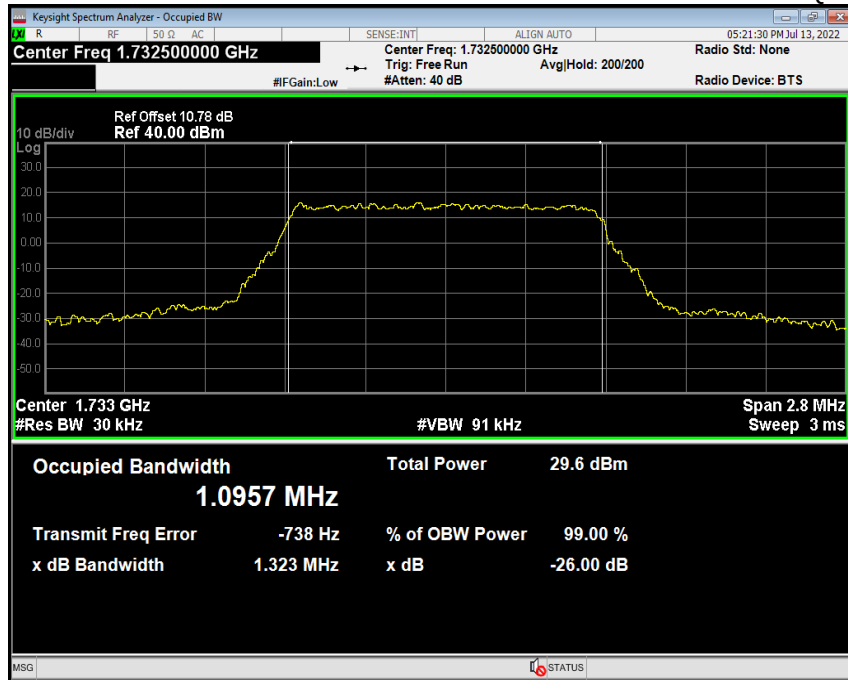
1.4 MHz QAM16





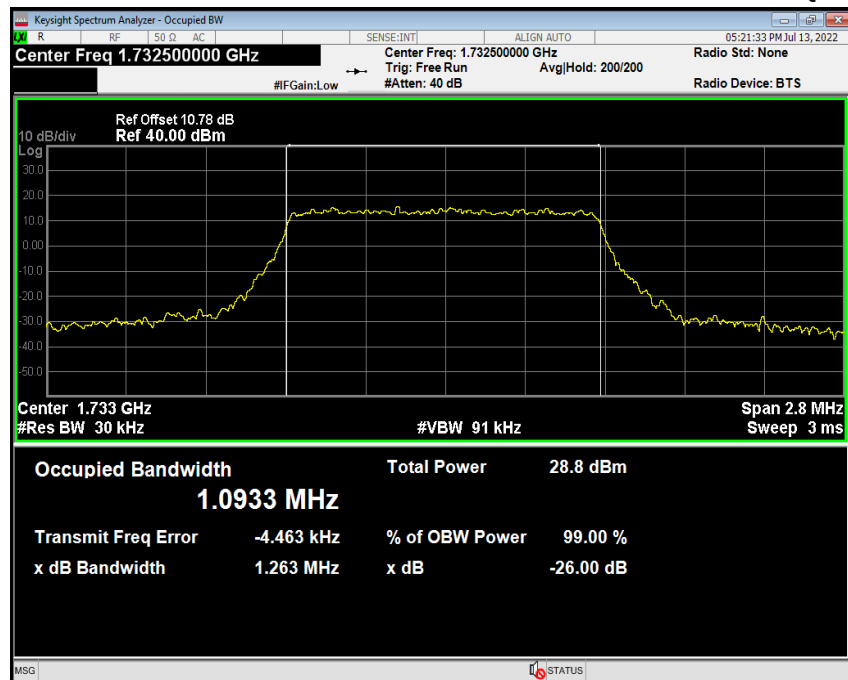
LTE Band 4 Middle channel

1.4 MHz QPSK



LTE Band 4 Middle channel

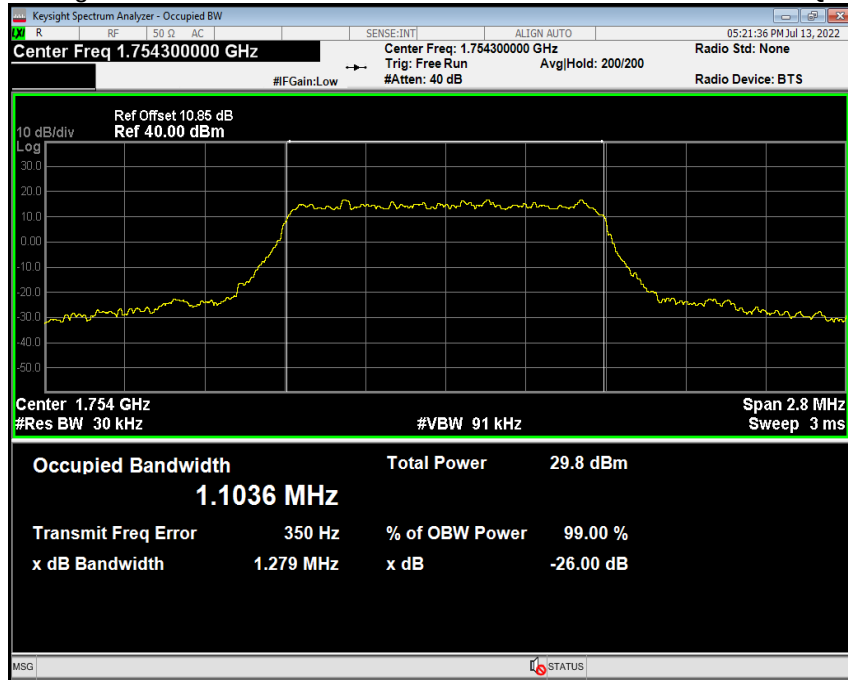
1.4 MHz QAM16





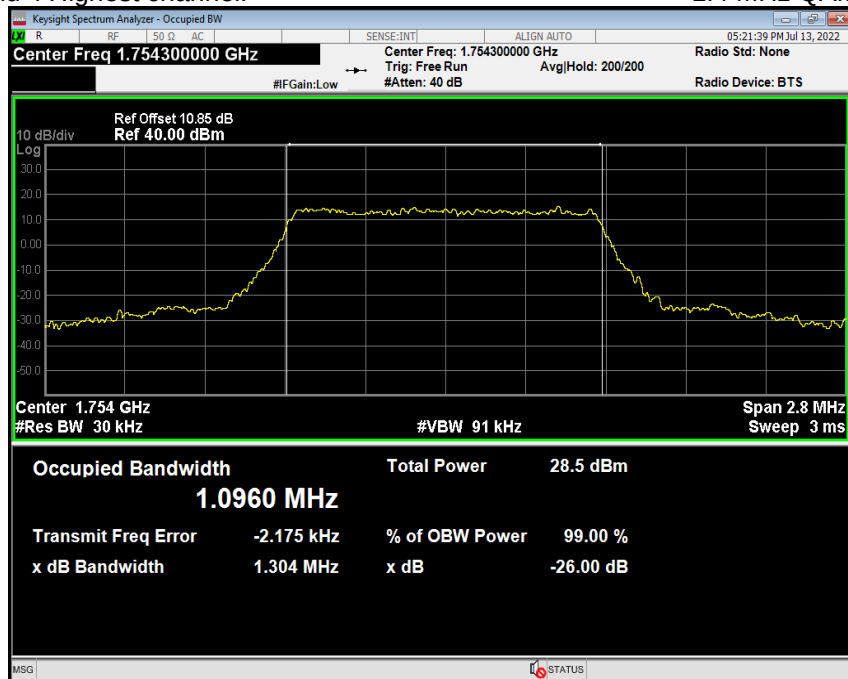
LTE Band 4 Highest channel:

1.4 MHz QPSK



LTE Band 4 Highest channel:

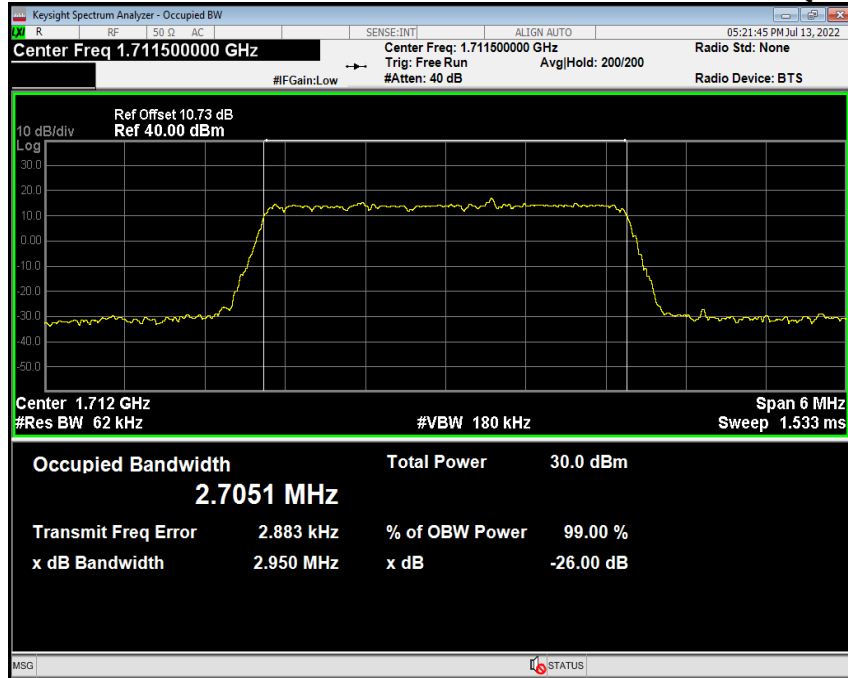
1.4 MHz QAM16





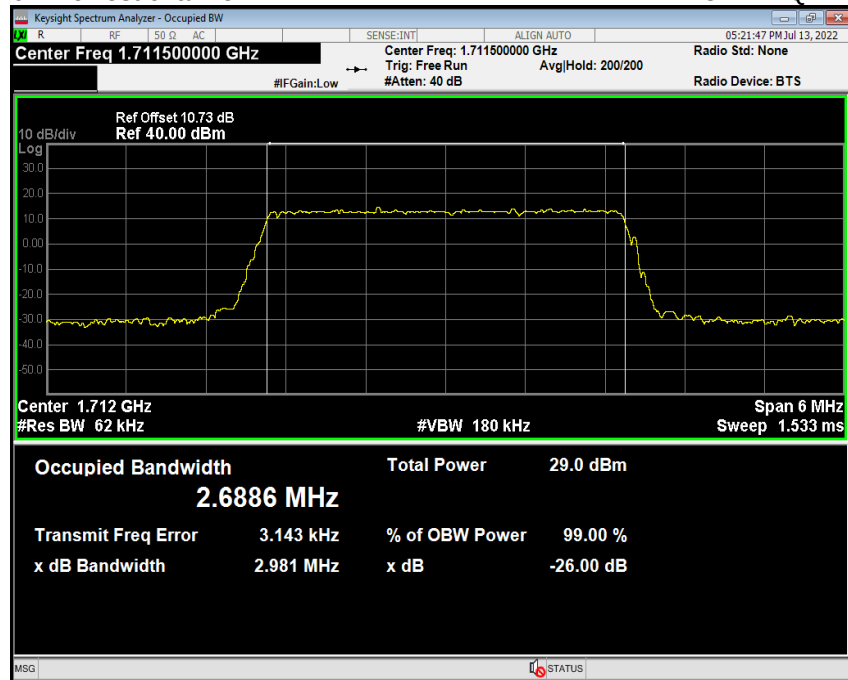
LTE Band 4 Lowest channel

3 MHz QPSK



LTE Band 4 Lowest channel

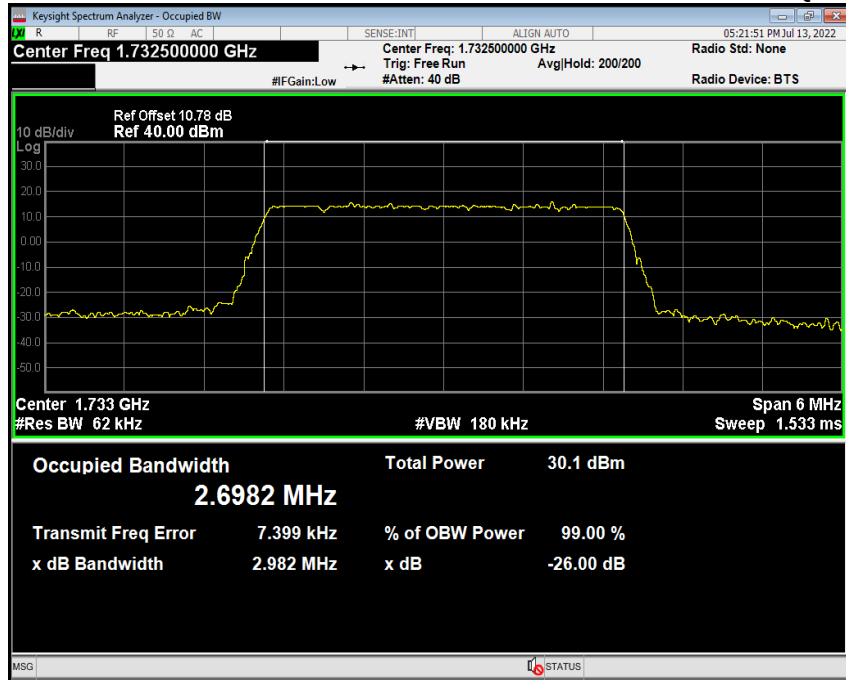
3 MHz QAM16





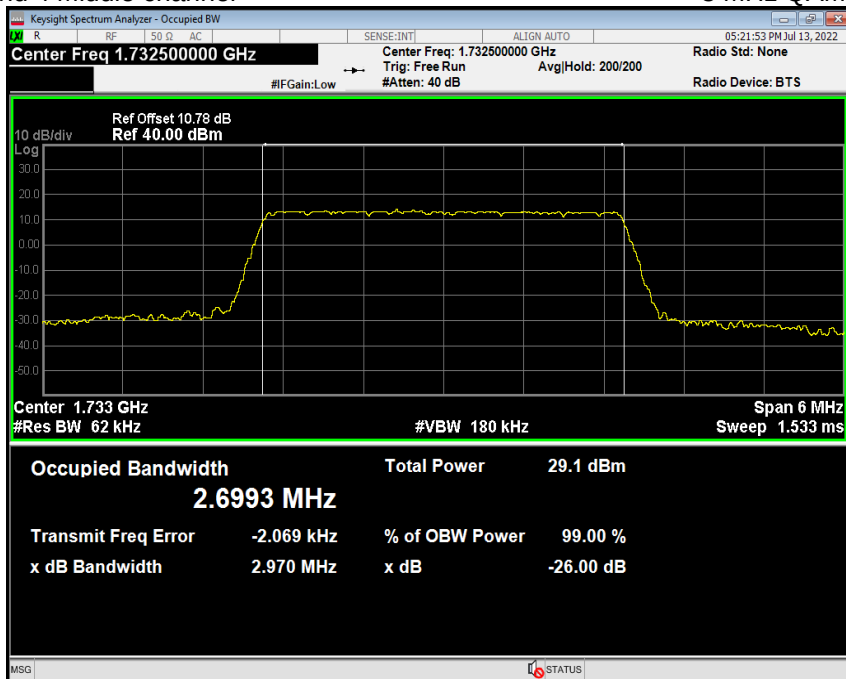
LTE Band 4 Middle channel

3 MHz QPSK



LTE Band 4 Middle channel

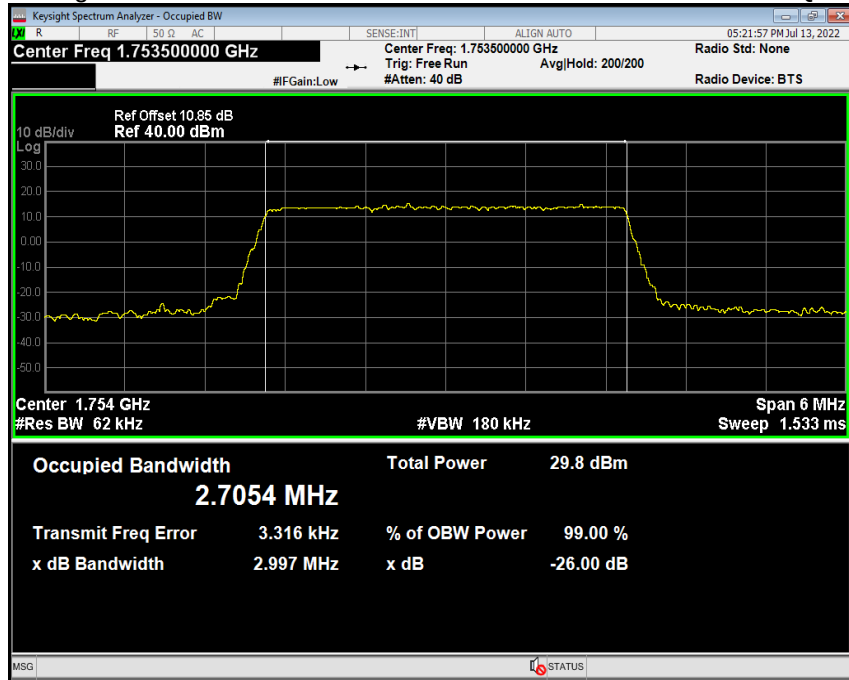
3 MHz QAM16





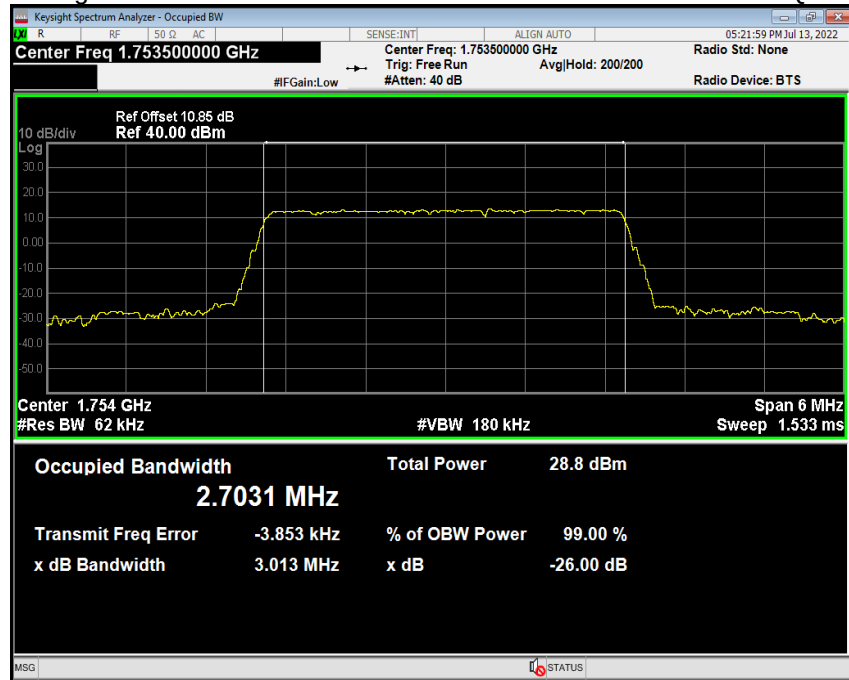
LTE Band 4 Highest channel:

3 MHz QPSK



LTE Band 4 Highest channel:

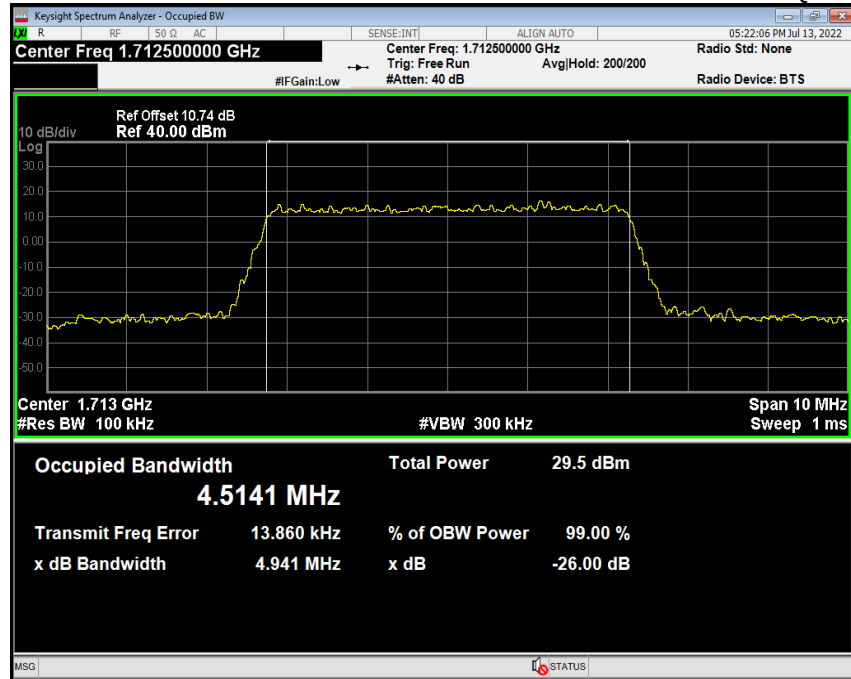
3 MHz QAM16





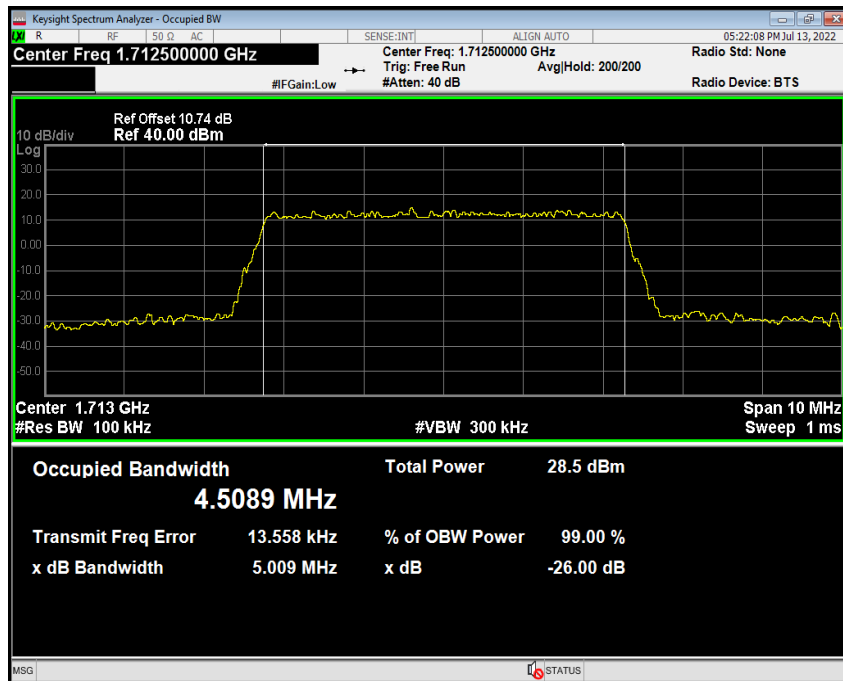
LTE Band 4 Lowest channel

5 MHz QPSK



LTE Band 4 Lowest channel

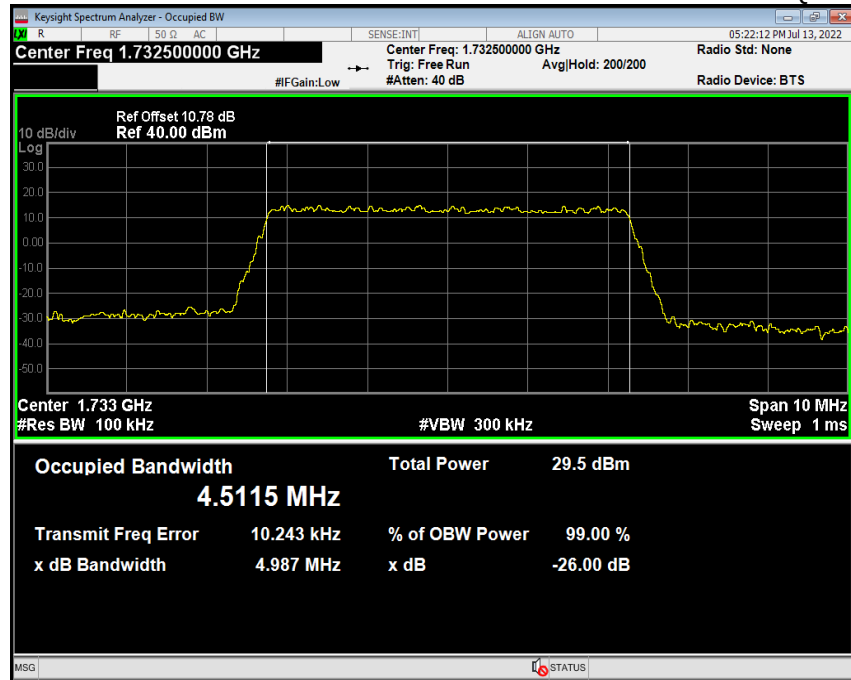
5 MHz QAM16





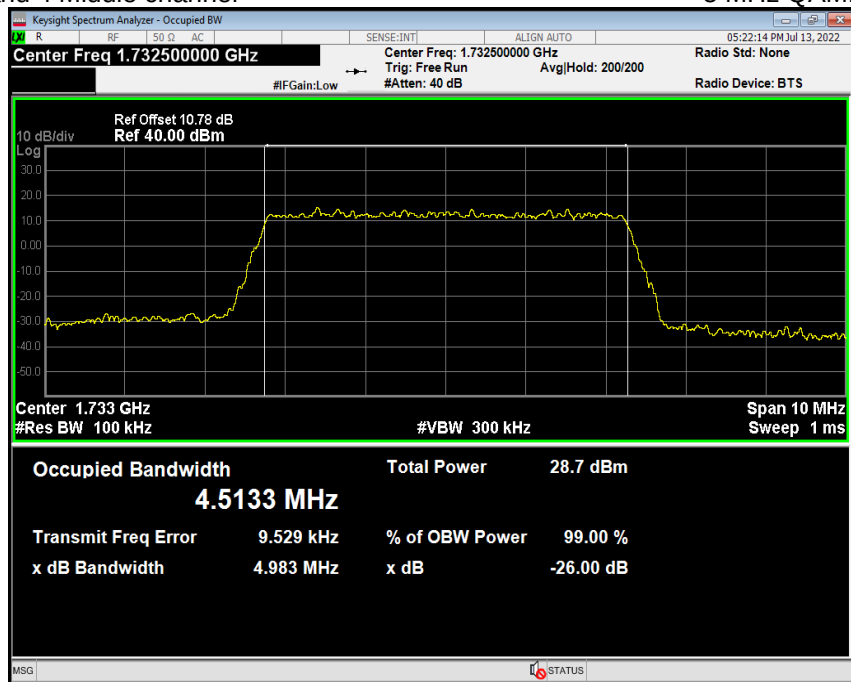
LTE Band 4 Middle channel

5 MHz QPSK



LTE Band 4 Middle channel

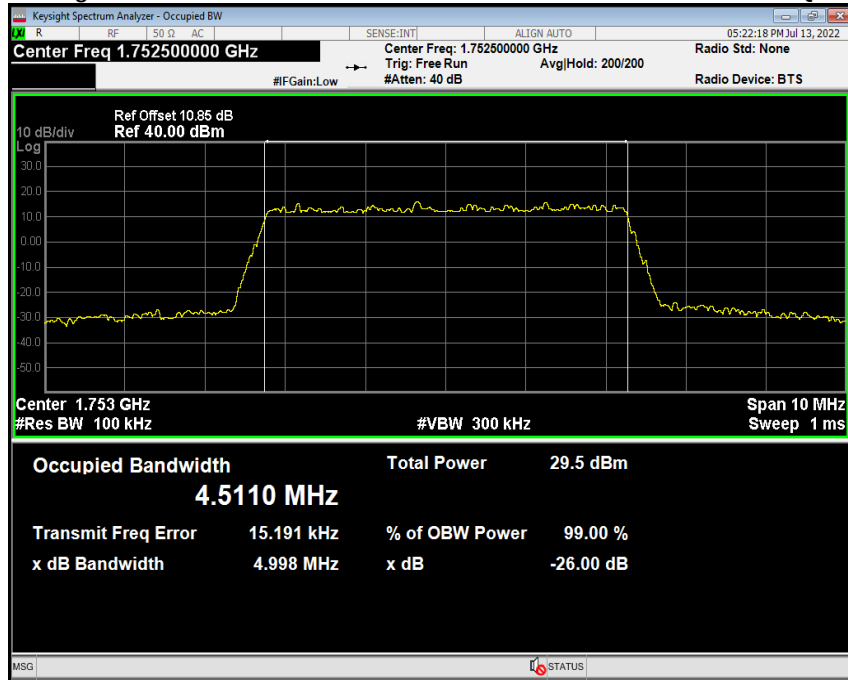
5 MHz QAM16





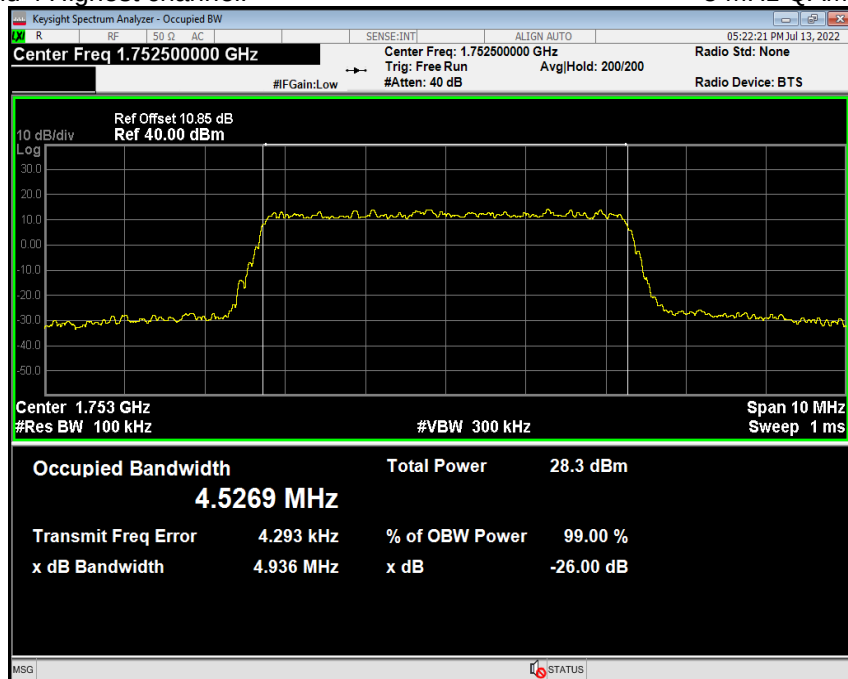
LTE Band 4 Highest channel:

5 MHz QPSK



LTE Band 4 Highest channel:

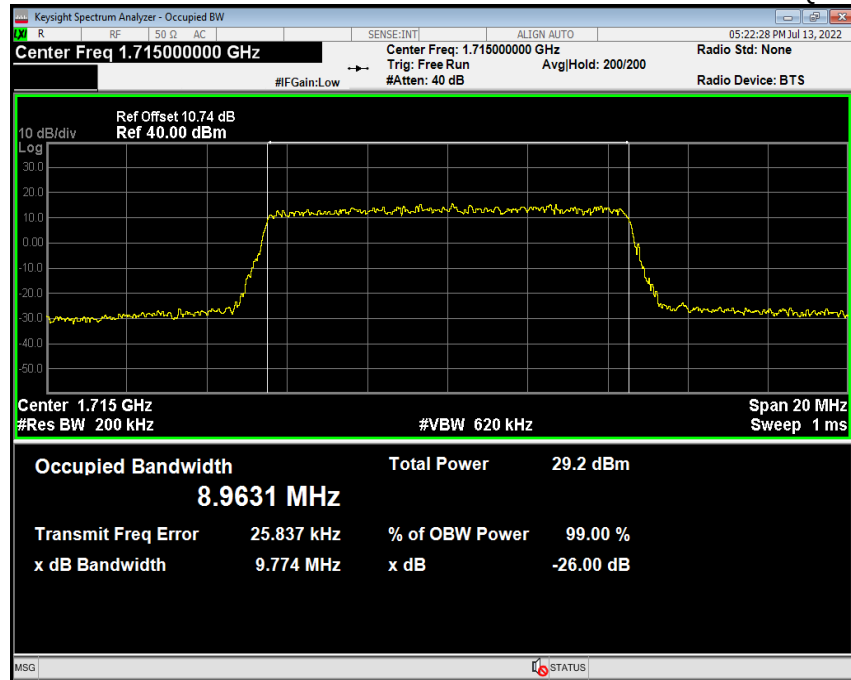
5 MHz QAM16





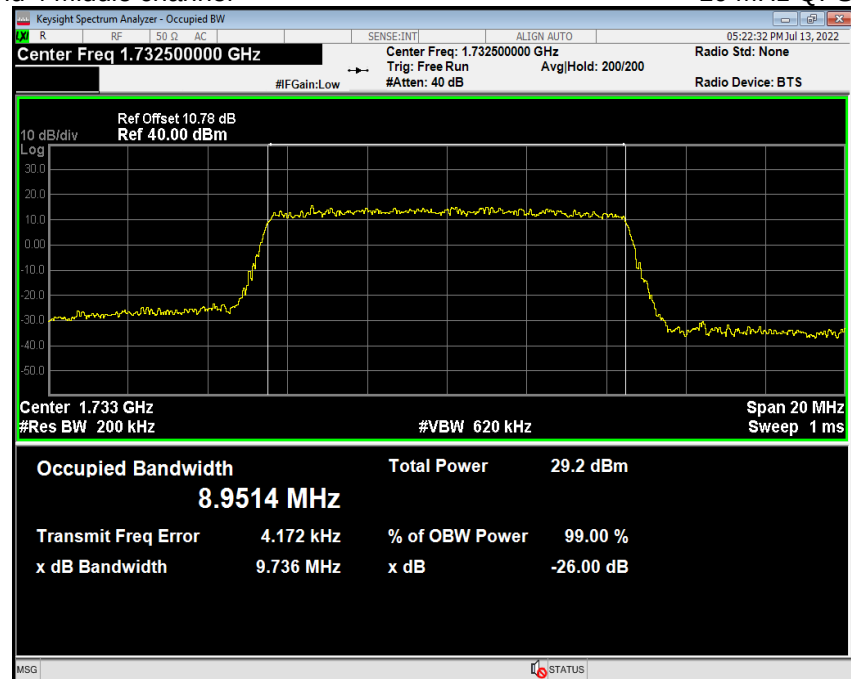
LTE Band 4 Lowest channel

10 MHz QPSK



LTE Band 4 Middle channel

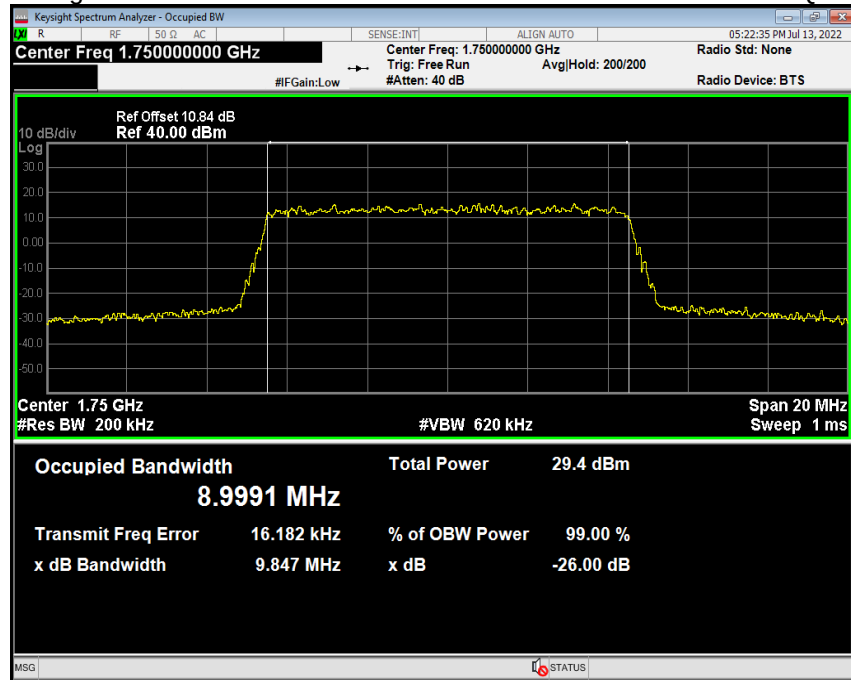
10 MHz QPSK





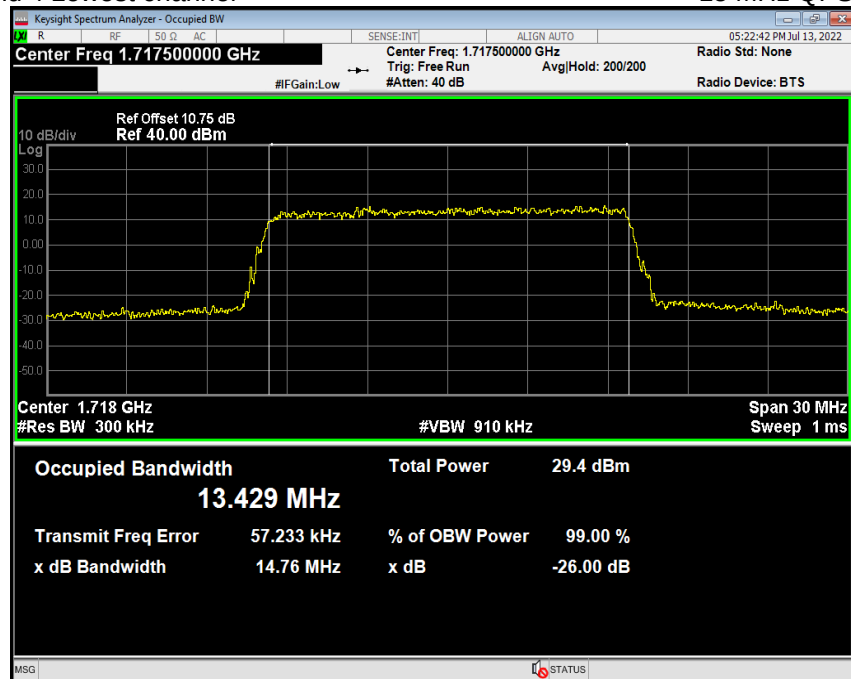
LTE Band 4 Highest channel:

10 MHz QPSK



LTE Band 4 Lowest channel

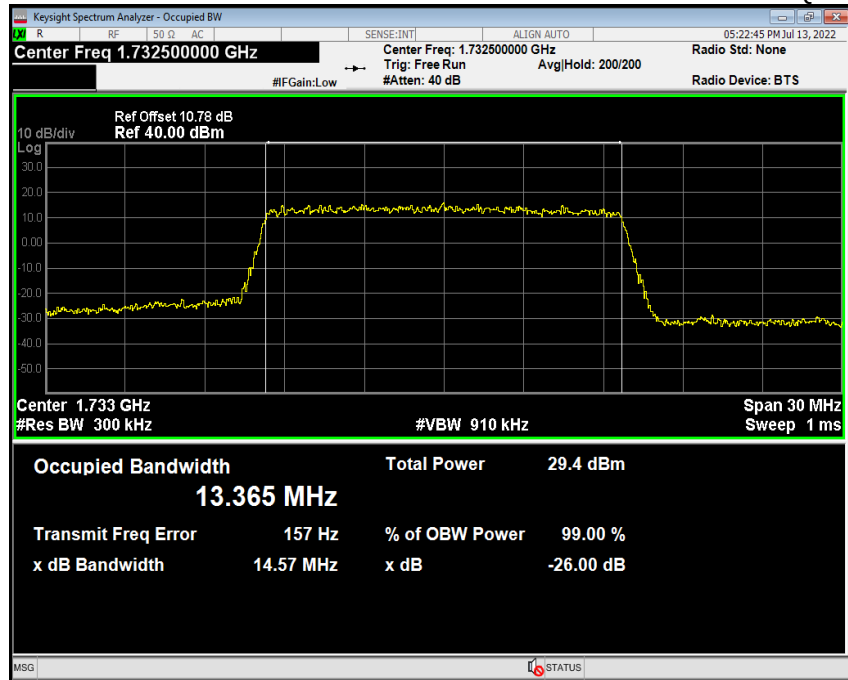
15 MHz QPSK





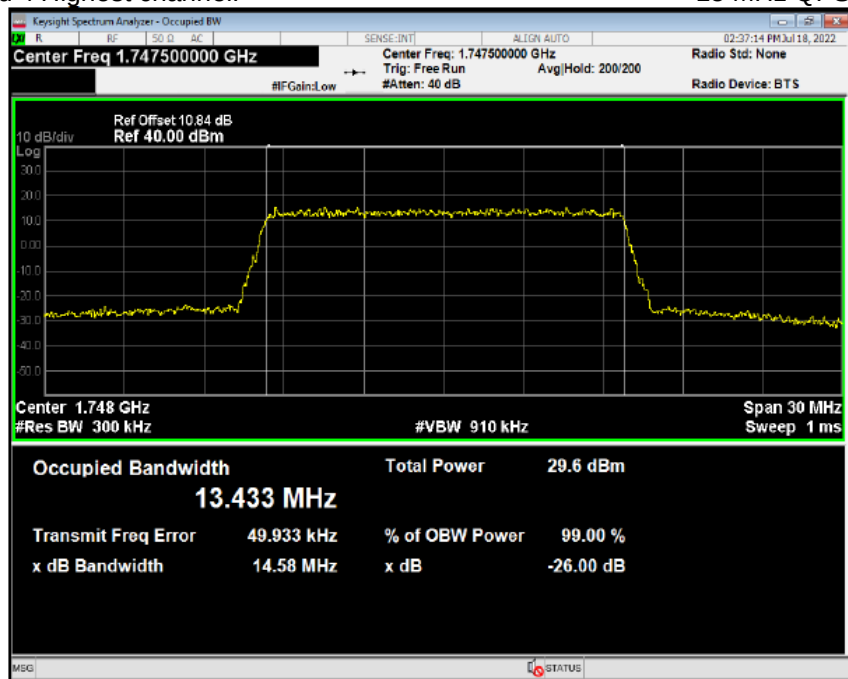
LTE Band 4 Middle channel

15 MHz QPSK



LTE Band 4 Highest channel:

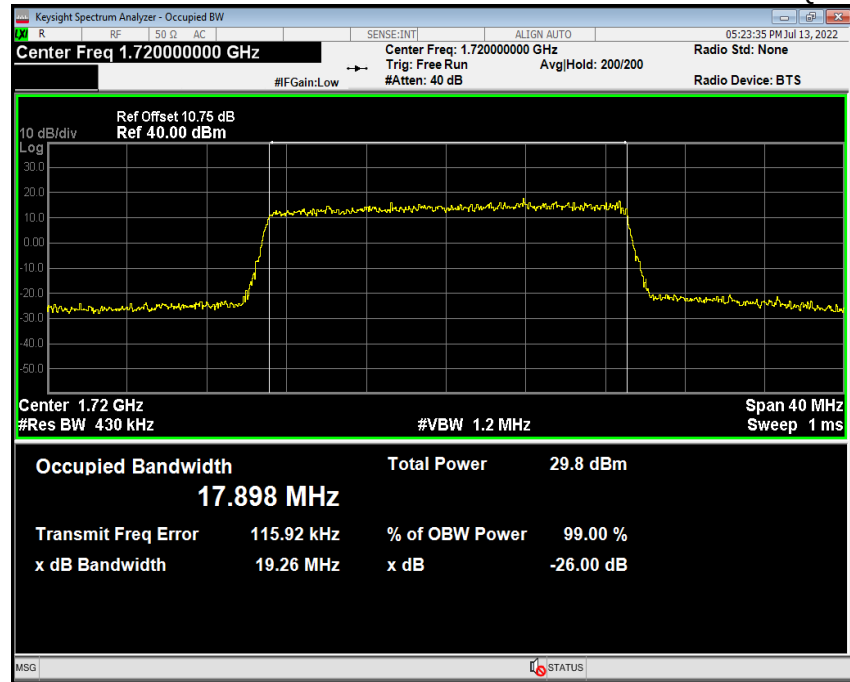
15 MHz QPSK





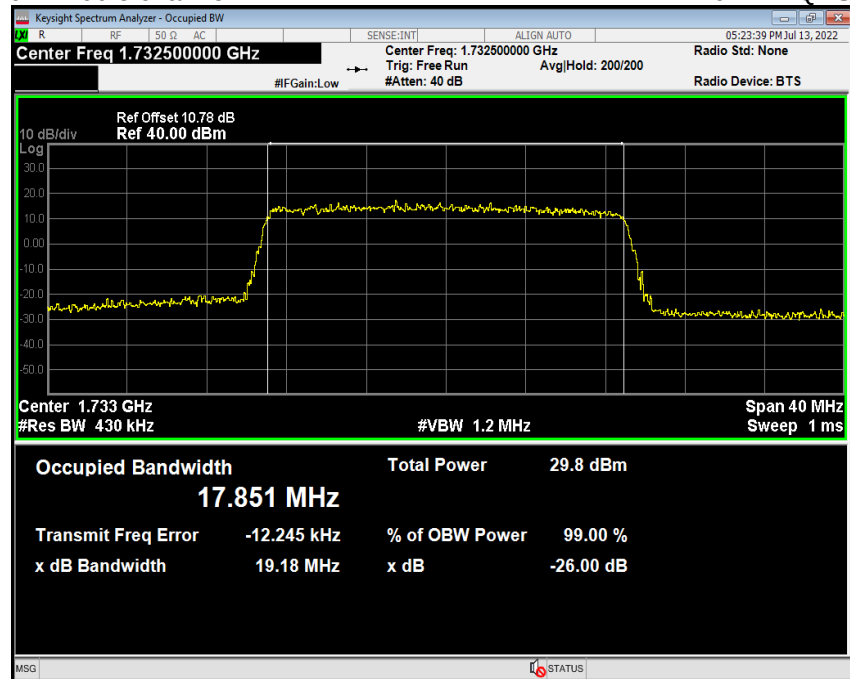
LTE Band 4 Lowest channel

20 MHz QPSK



LTE Band 4 Middle channel

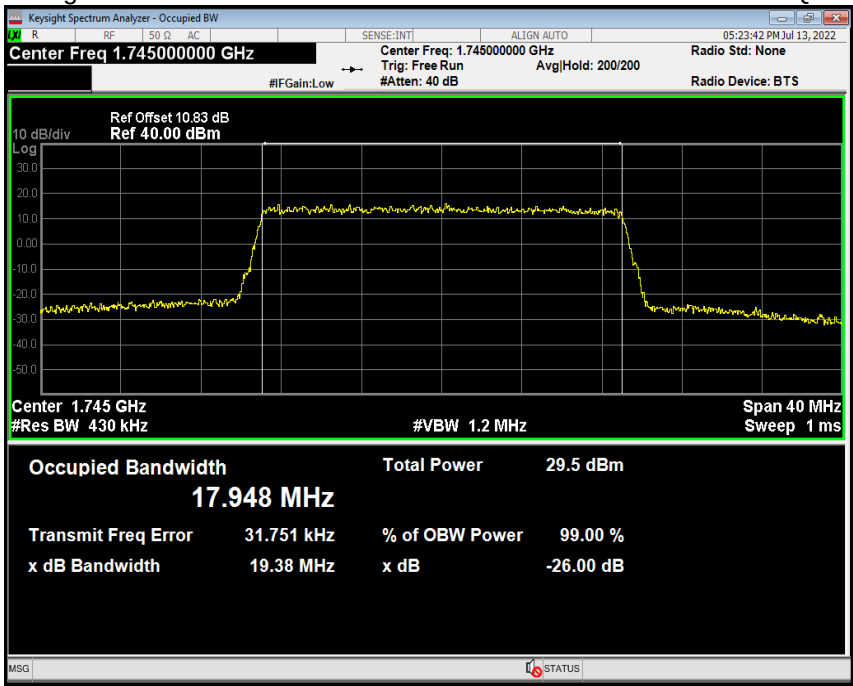
20 MHz QPSK





LTE Band 4 Highest channel:

20 MHz QPSK





1.2. Conducted Spurious Emissions

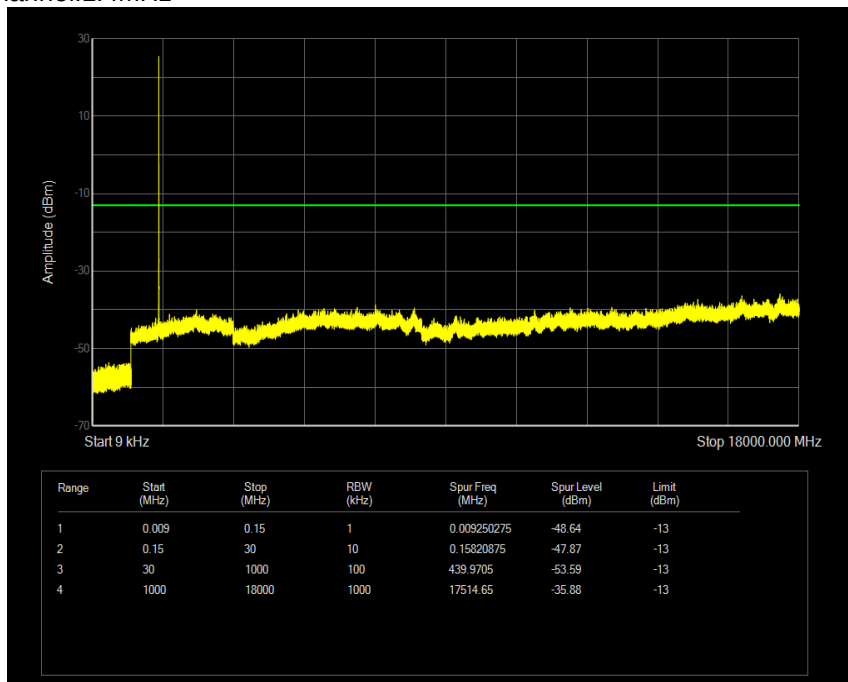
1.2.1. Test Result

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.

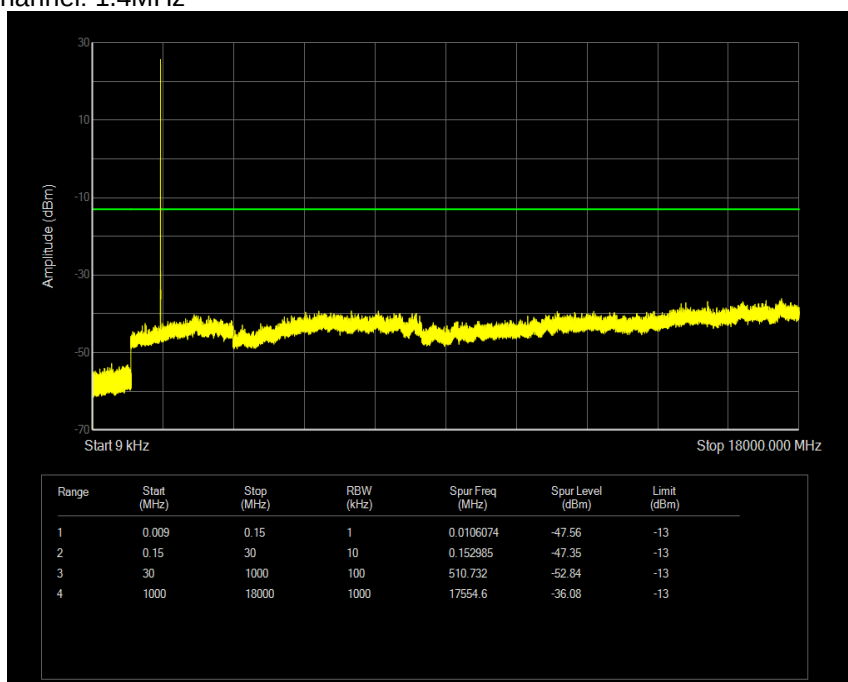
For LTE mode, the plot only show the QPSK, Lowest channel& Highest channel the worst data.

Pass, the table and plot please see annex.

LTE Band 4 Lowest channel:1.4MHz

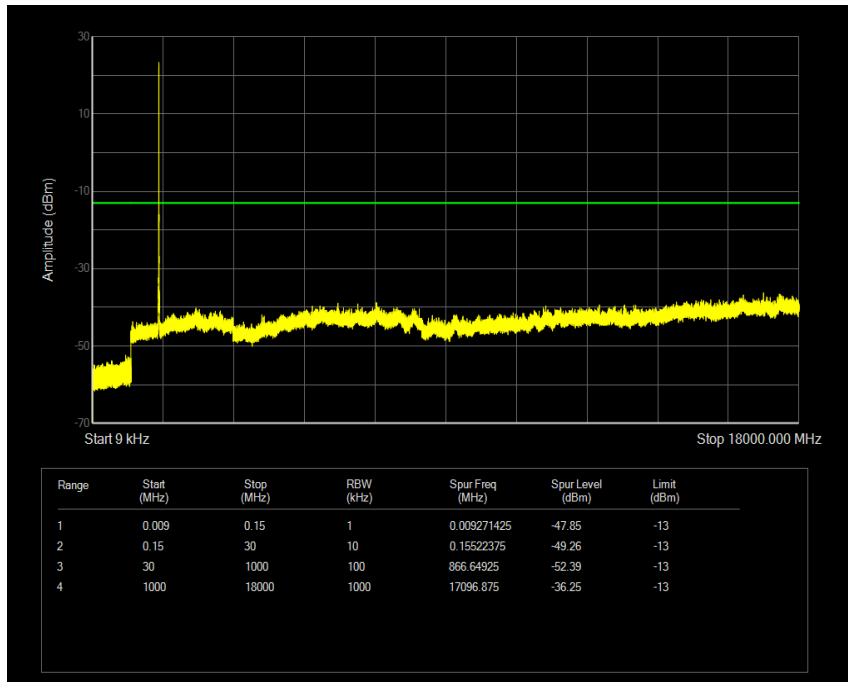


LTE Band 4 Highest channel: 1.4MHz

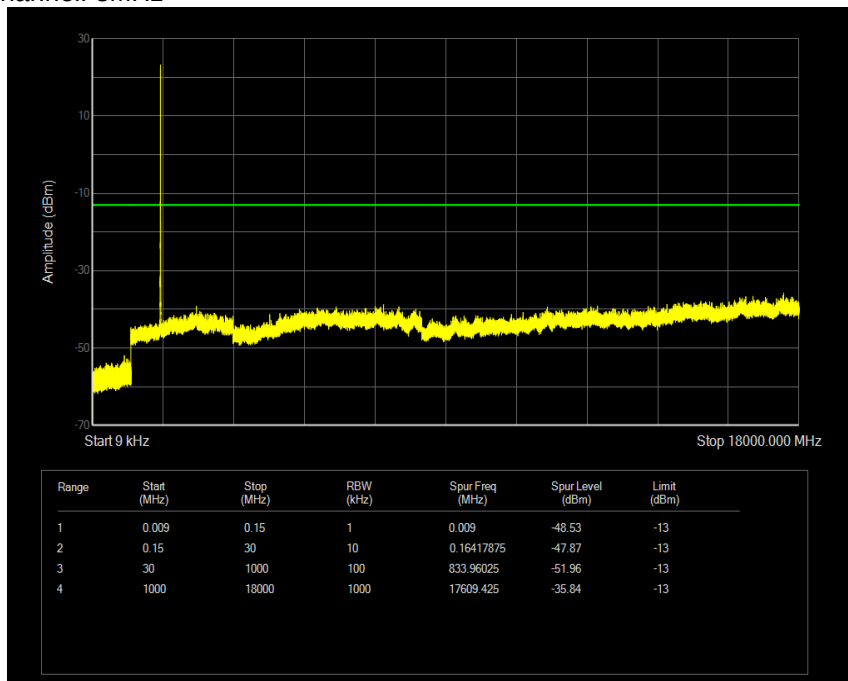




LTE Band 4 Lowest channel: 3MHz

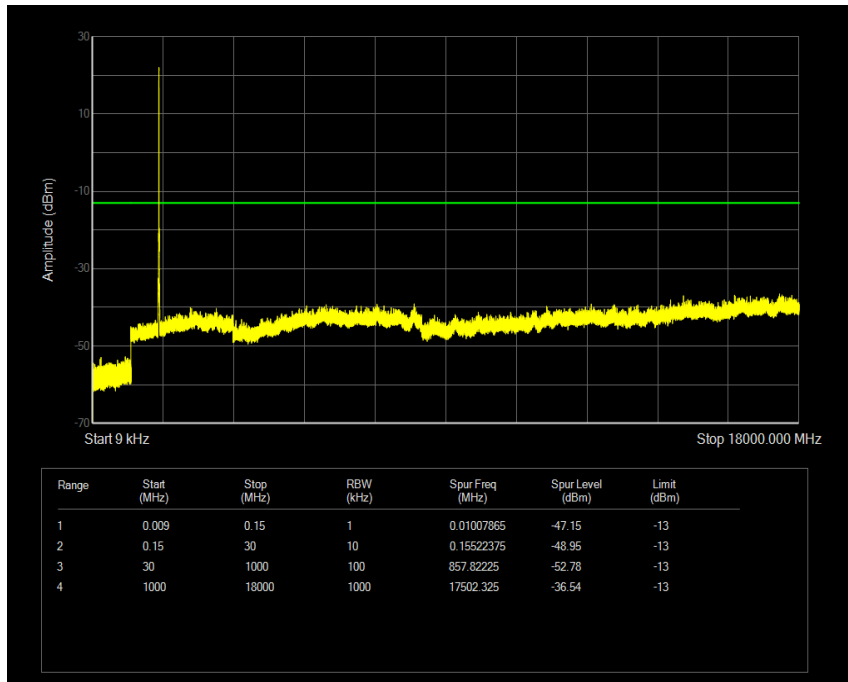


LTE Band 4 Highest channel: 3MHz

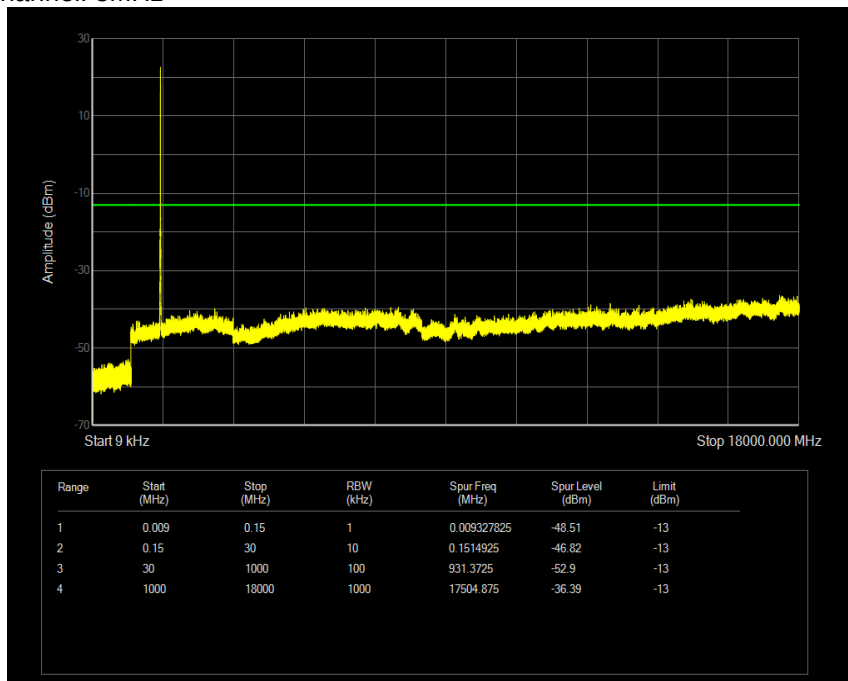




LTE Band 4 Lowest channel:5MHz

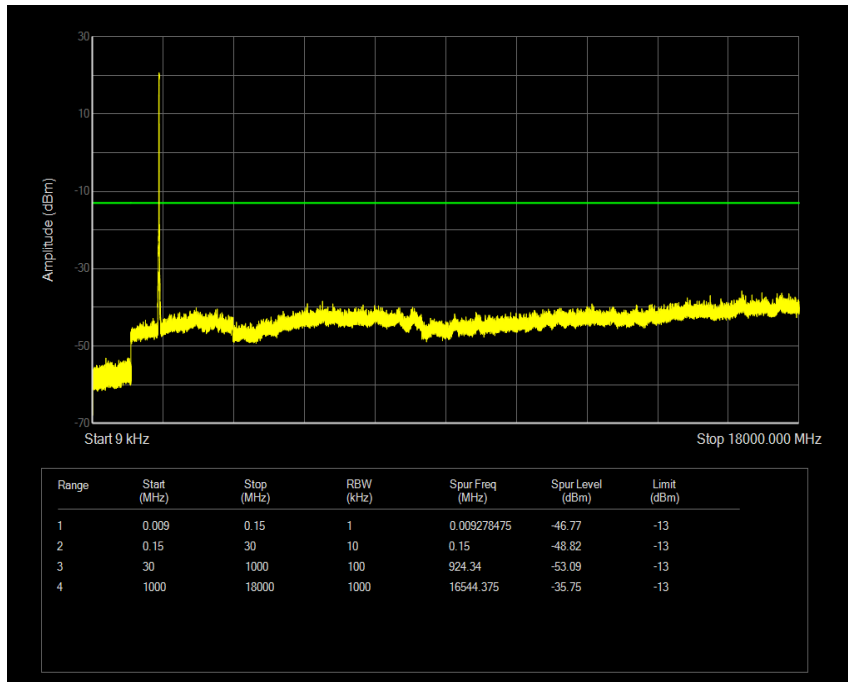


LTE Band 4 Highest channel: 5MHz

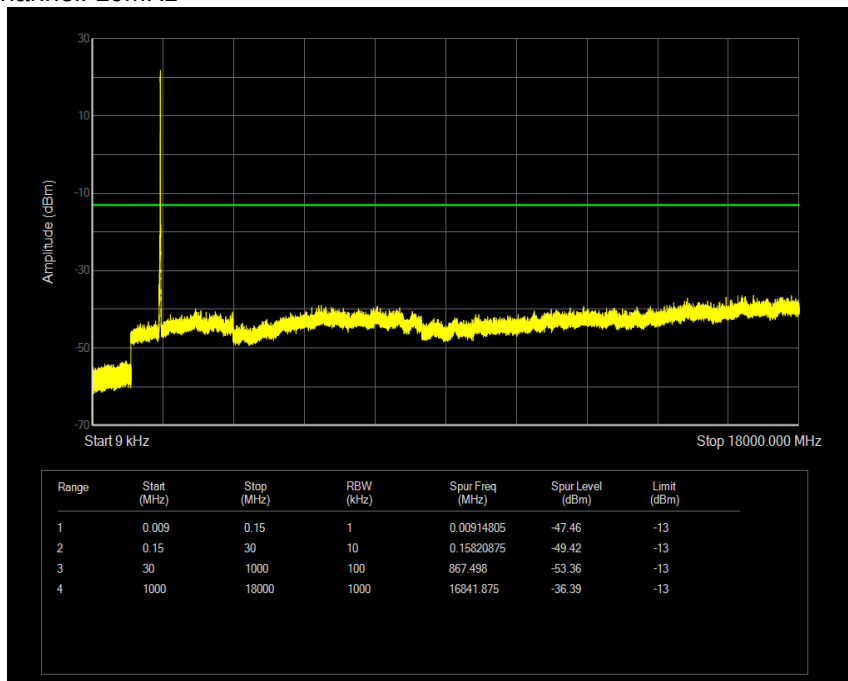




LTE Band 4 Lowest channel:10MHz

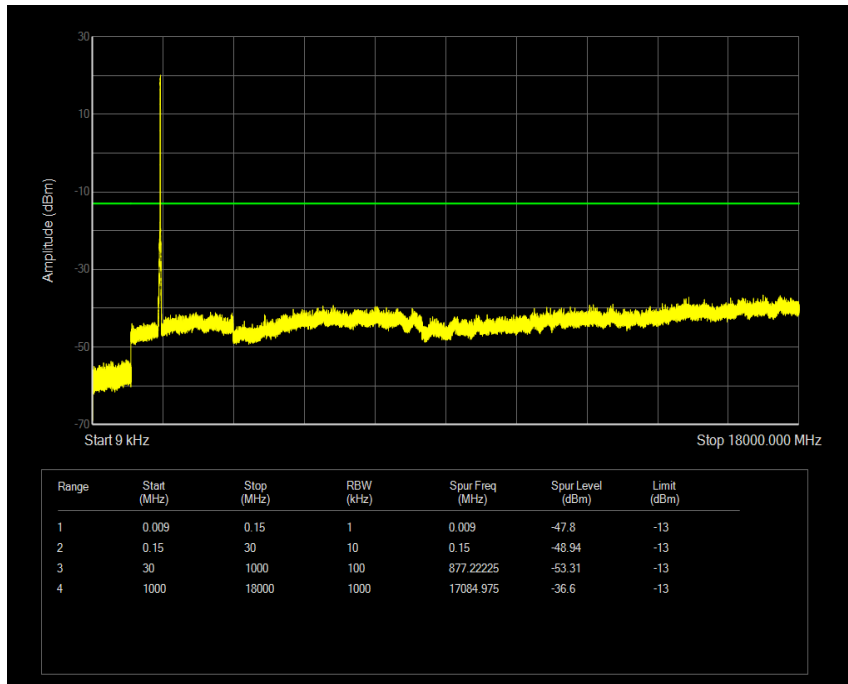


LTE Band 4 Highest channel: 10MHz

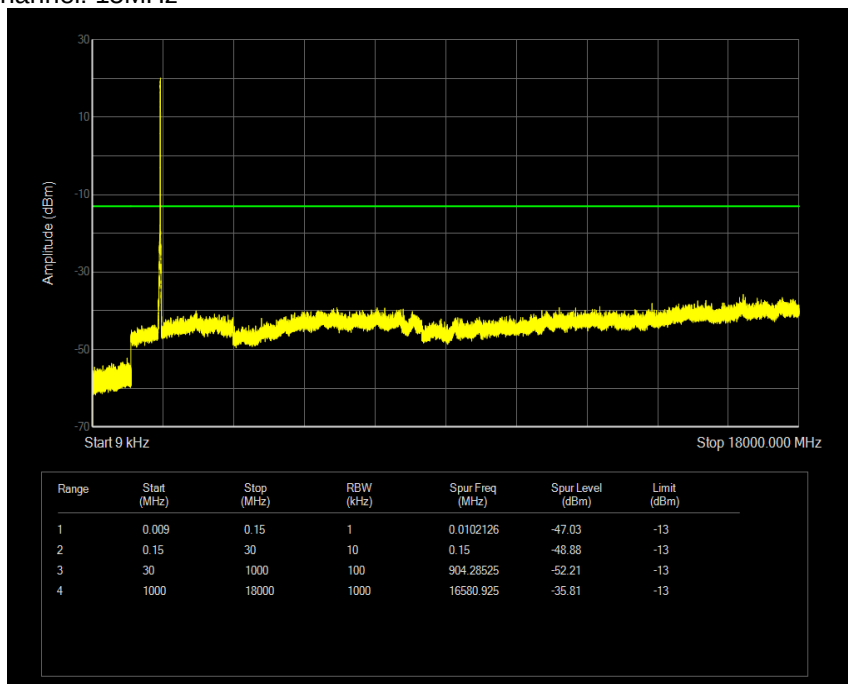




LTE Band 4 Lowest channel:15MHz

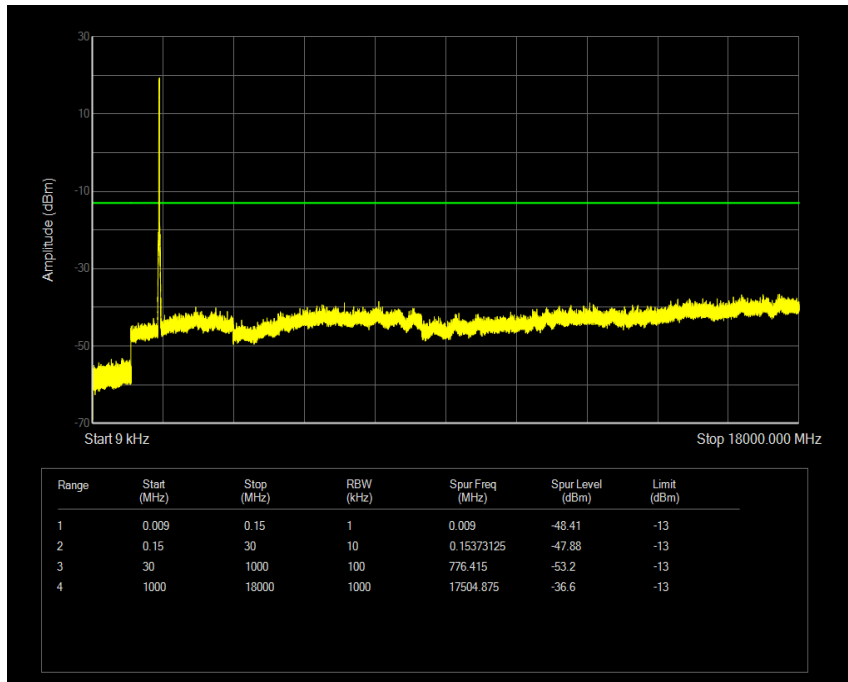


LTE Band 4 Highest channel: 15MHz

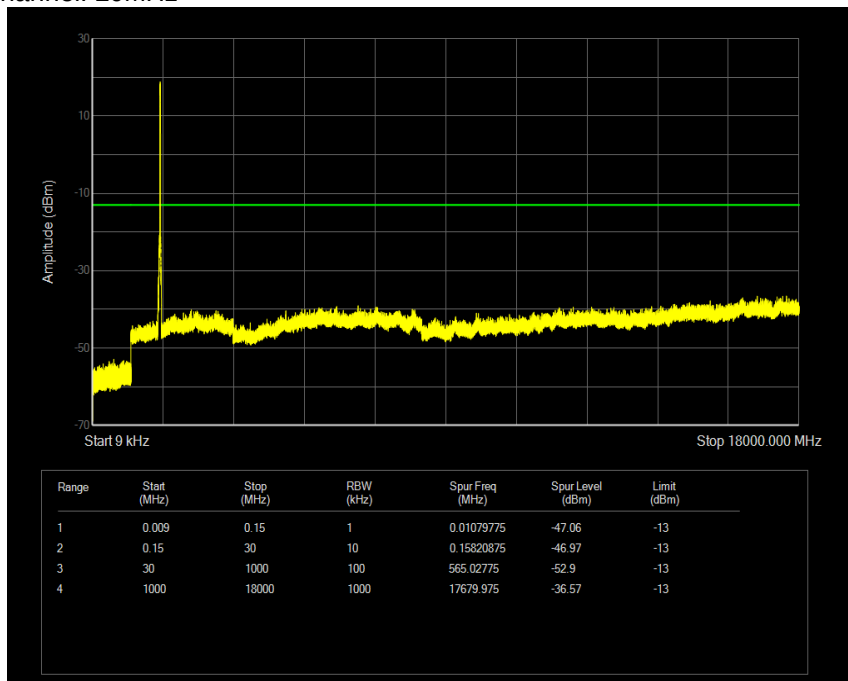




LTE Band 4 Lowest channel:20MHz



LTE Band 4 Highest channel: 20MHz





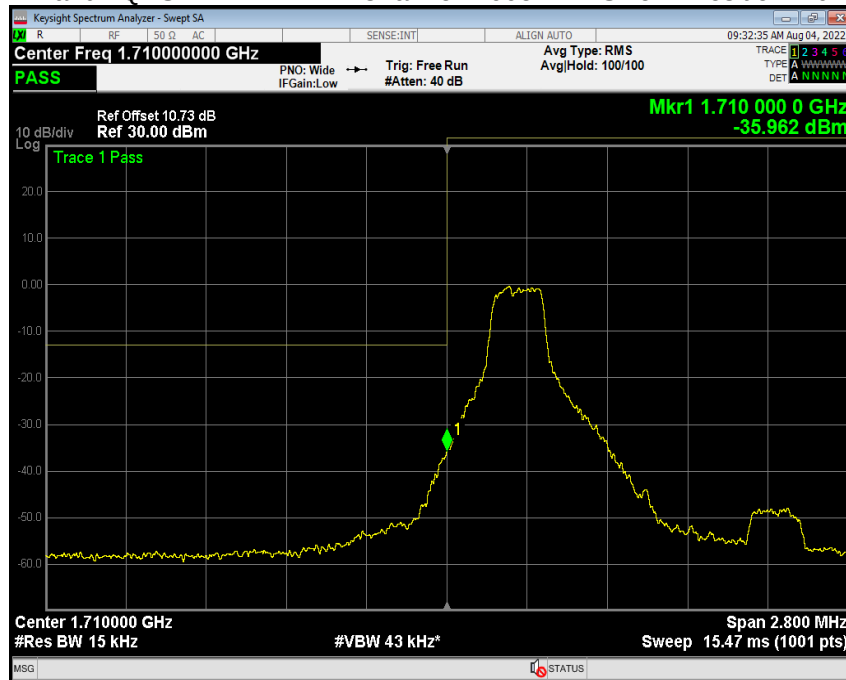
1.3. Conducted Out of Band Emissions

1.3.1. Test Result

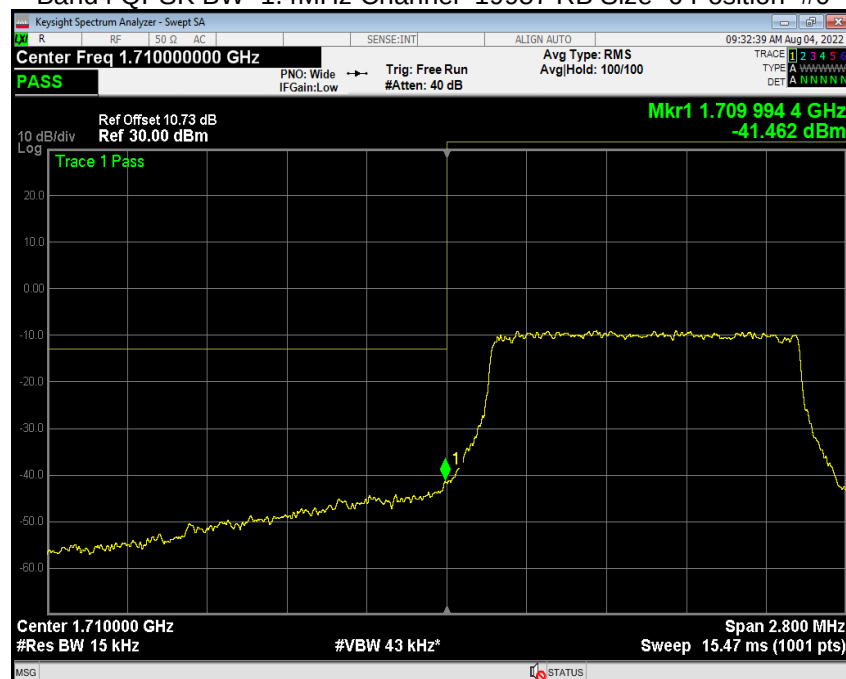
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

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

Band4 QPSK BW=1.4MHz Channel=19957 RB Size=1 Position=#0

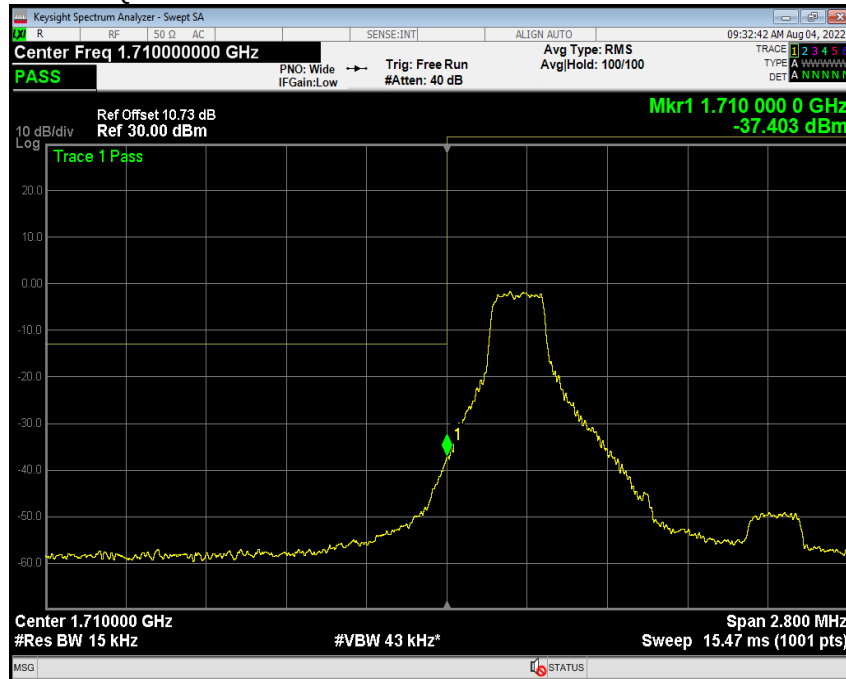


Band4 QPSK BW=1.4MHz Channel=19957 RB Size=6 Position=#0

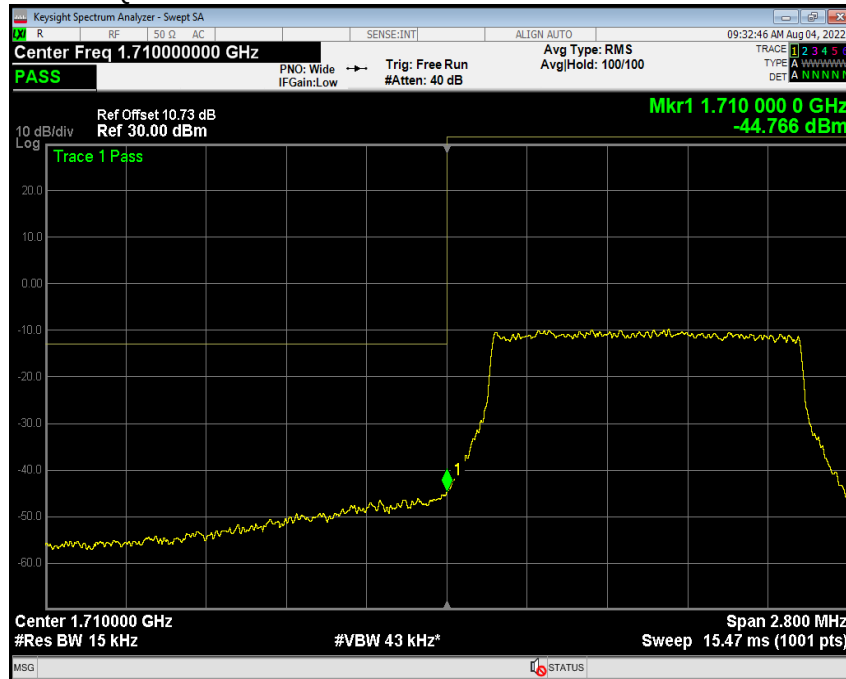




Band4 QAM16 BW=1.4MHz Channel=19957 RB Size=1 Position=#0

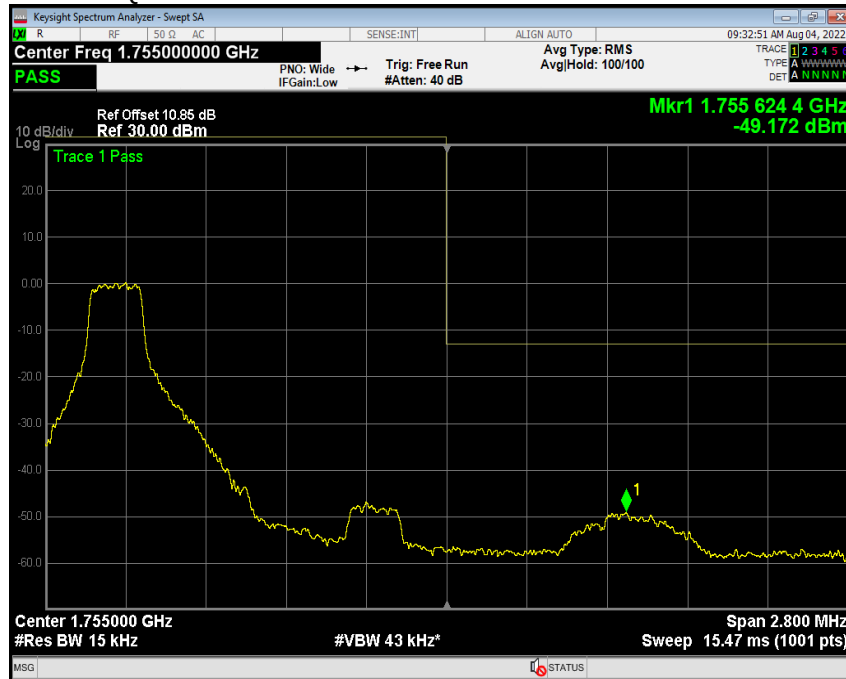


Band4 QAM16 BW=1.4MHz Channel=19957 RB Size=6 Position=#0





Band4 QPSK BW=1.4MHz Channel=20393 RB Size=1 Position=#0

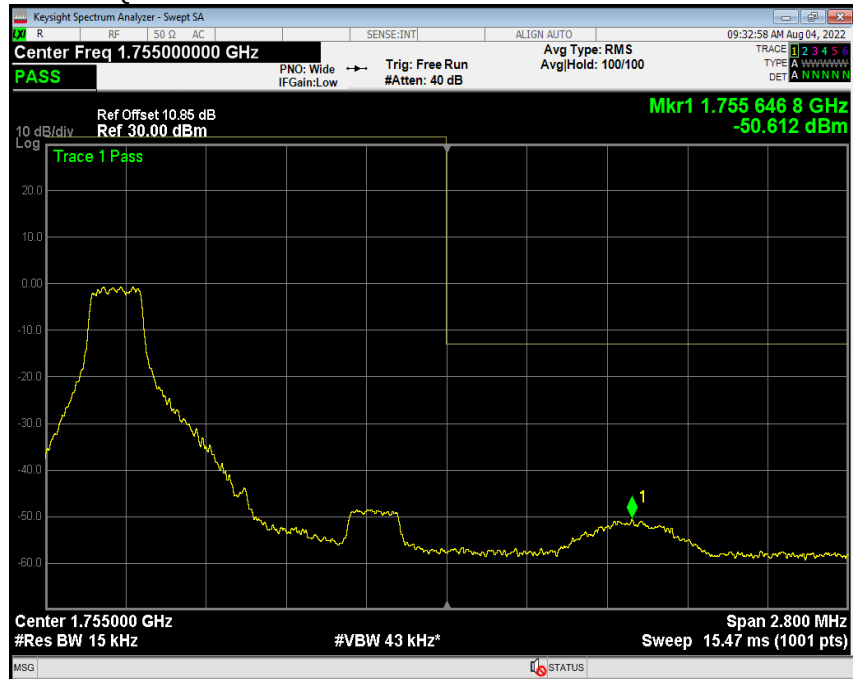


Band4 QPSK BW=1.4MHz Channel=20393 RB Size=6 Position=#0





Band4 QAM16 BW=1.4MHz Channel=20393 RB Size=1 Position=#0

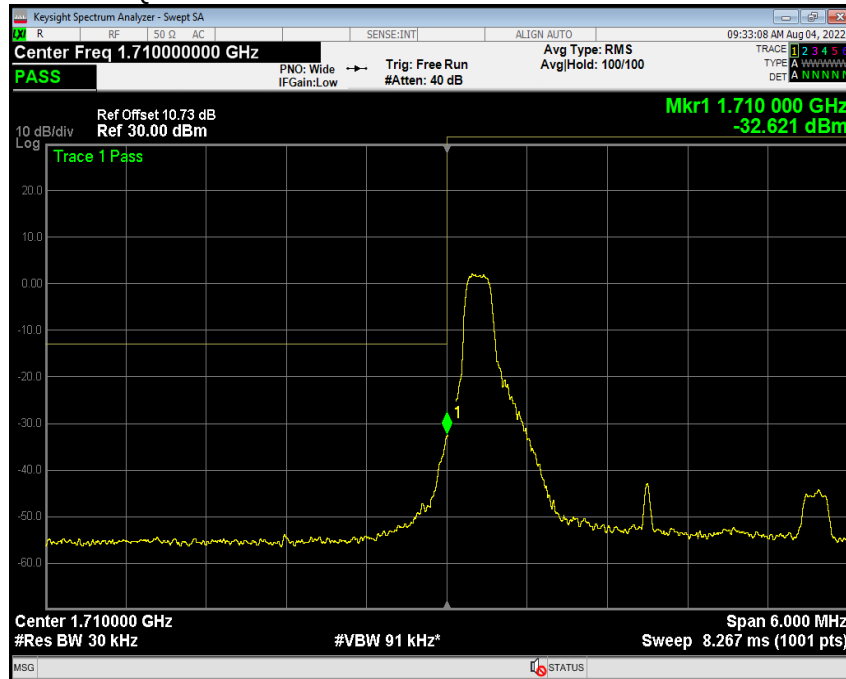


Band4 QAM16 BW=1.4MHz Channel=20393 RB Size=6 Position=#0

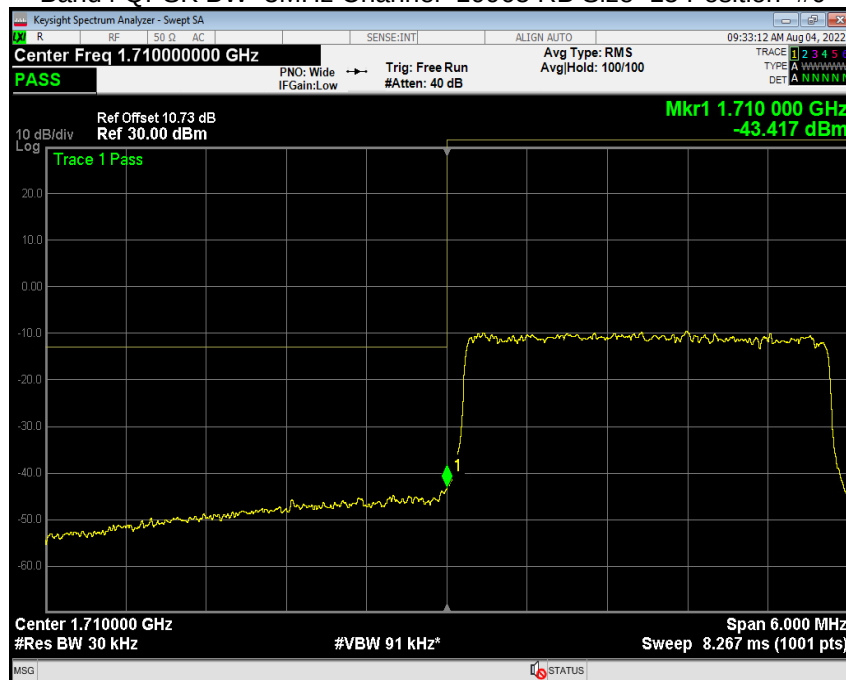




Band4 QPSK BW=3MHz Channel=19965 RB Size=1 Position=#0

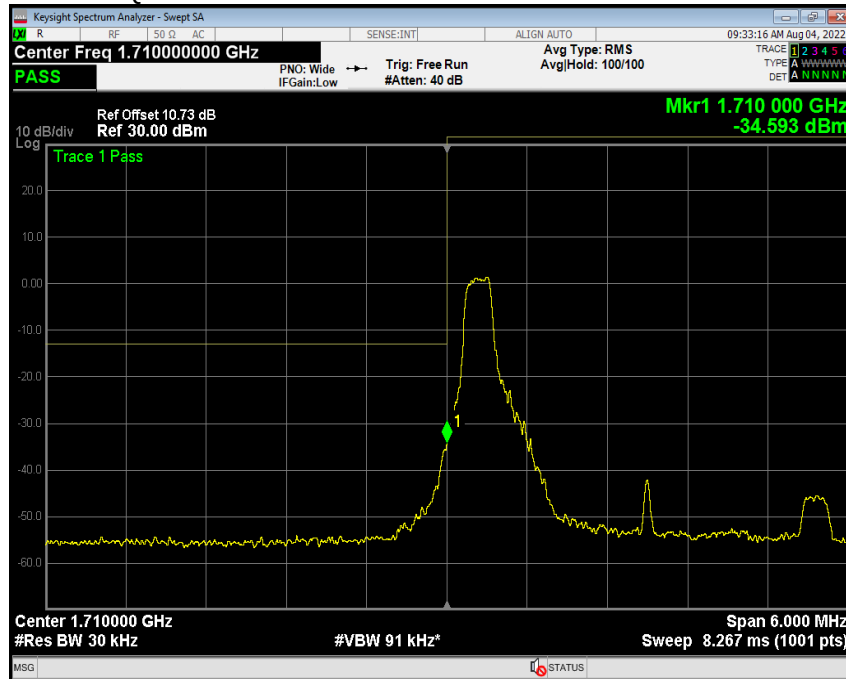


Band4 QPSK BW=3MHz Channel=19965 RB Size=15 Position=#0

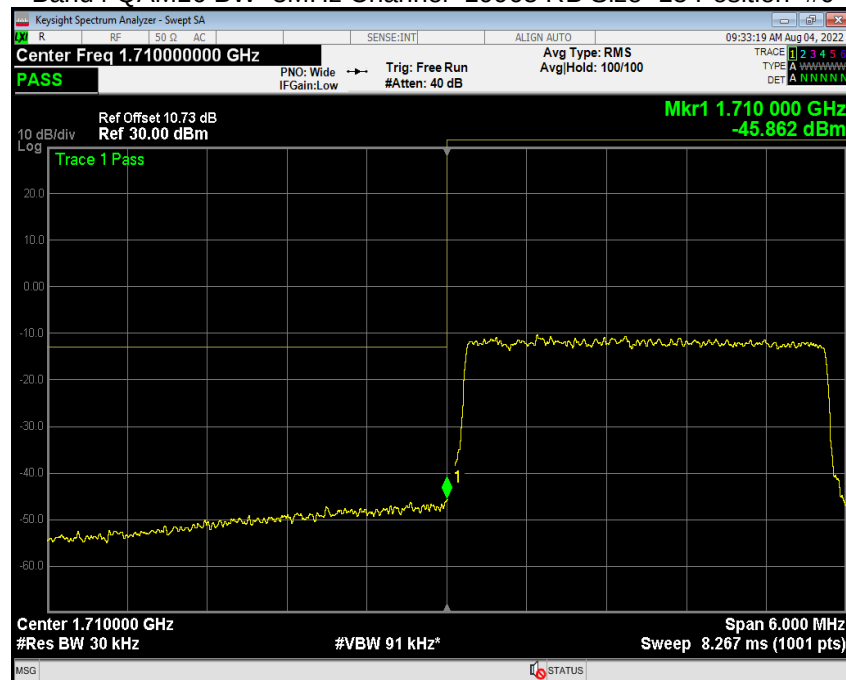




Band4 QAM16 BW=3MHz Channel=19965 RB Size=1 Position=#0

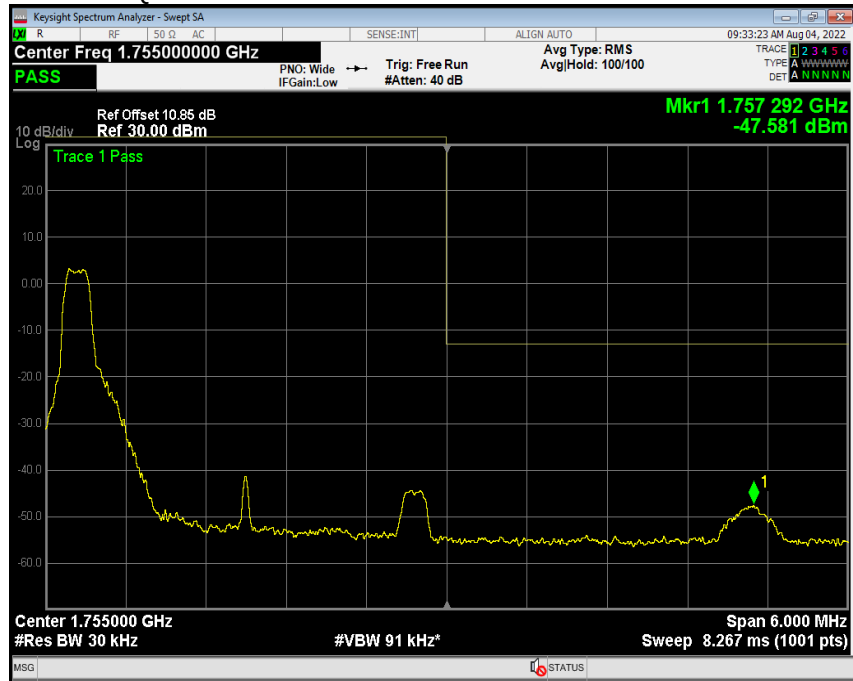


Band4 QAM16 BW=3MHz Channel=19965 RB Size=15 Position=#0

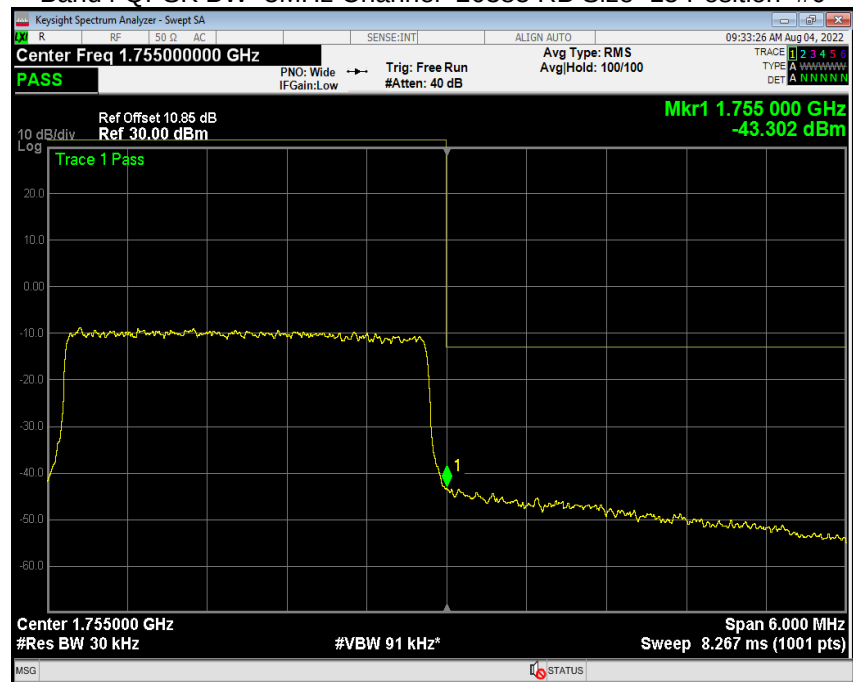




Band4 QPSK BW=3MHz Channel=20385 RB Size=1 Position=#0

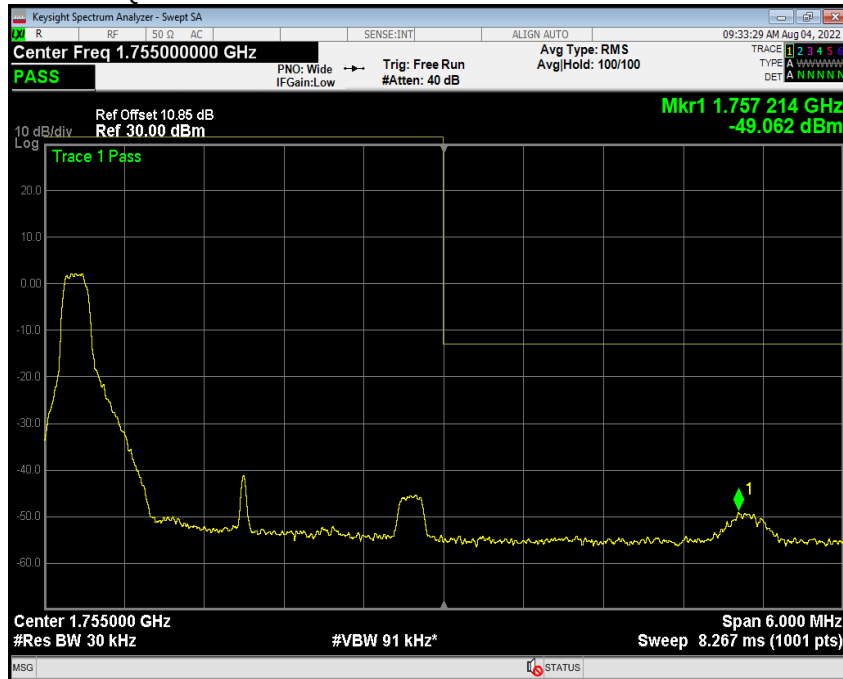


Band4 QPSK BW=3MHz Channel=20385 RB Size=15 Position=#0

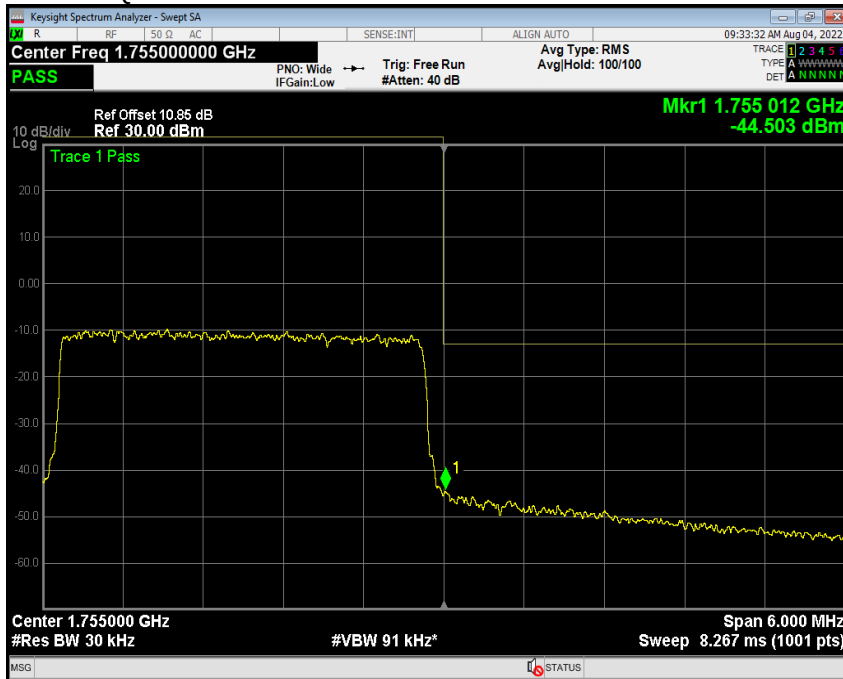




Band4 QAM16 BW=3MHz Channel=20385 RB Size=1 Position=#0

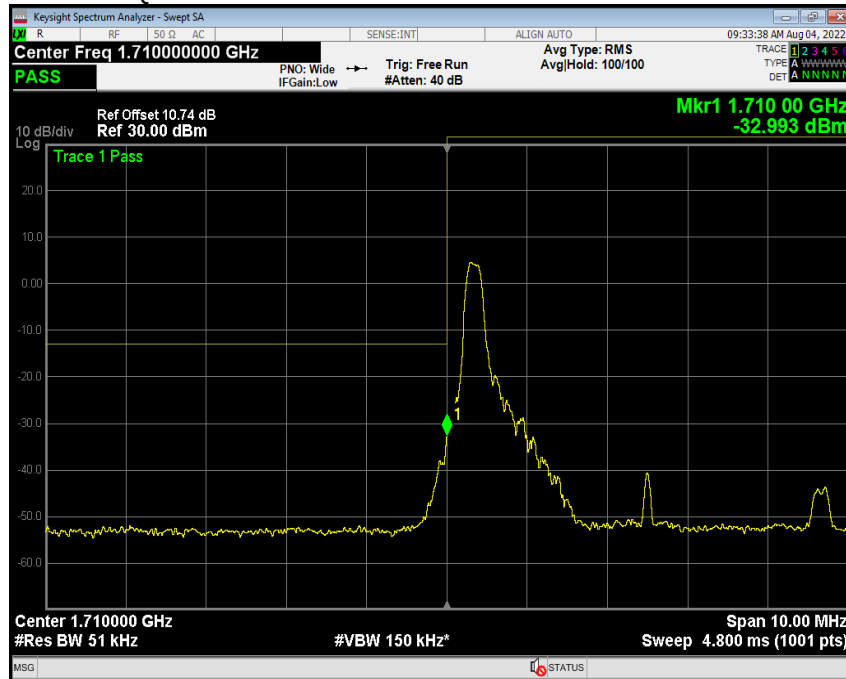


Band4 QAM16 BW=3MHz Channel=20385 RB Size=15 Position=#0

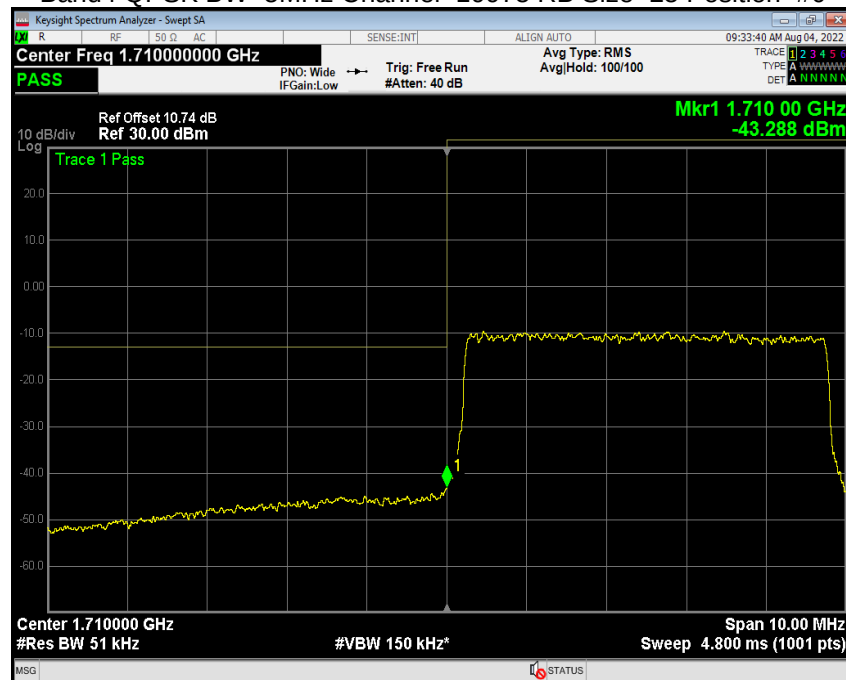




Band4 QPSK BW=5MHz Channel=19975 RB Size=1 Position=#0

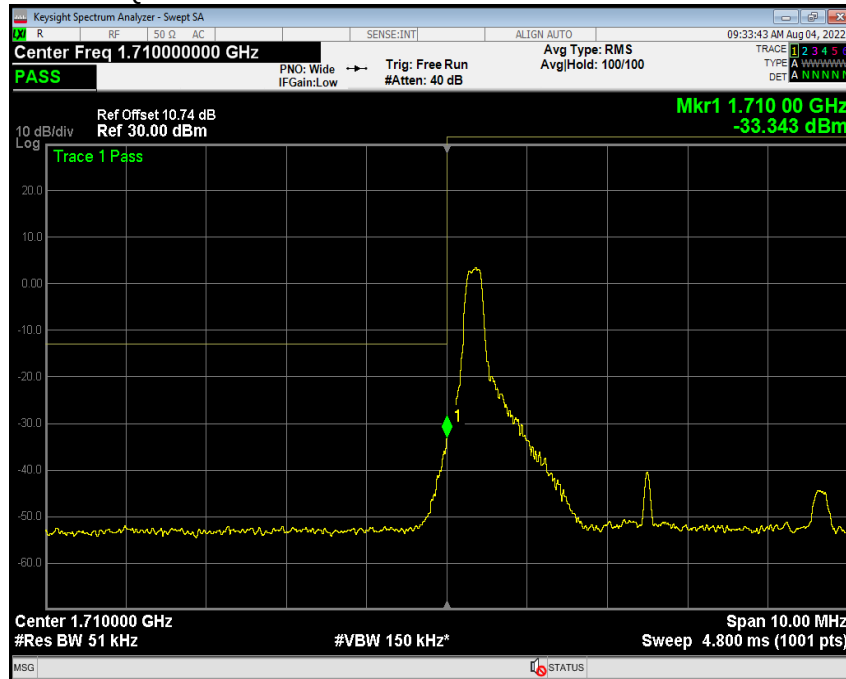


Band4 QPSK BW=5MHz Channel=19975 RB Size=25 Position=#0

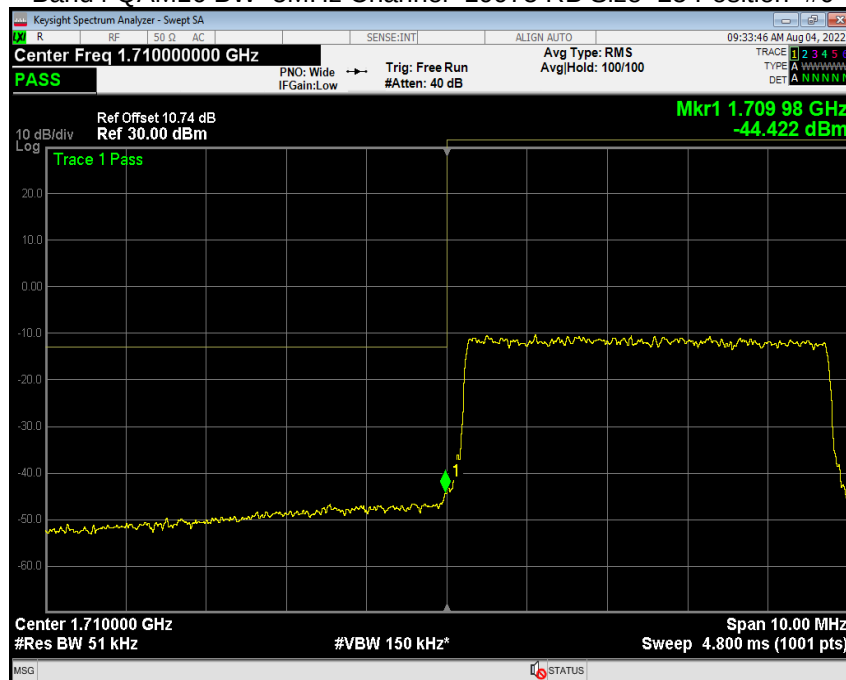




Band4 QAM16 BW=5MHz Channel=19975 RB Size=1 Position=#0

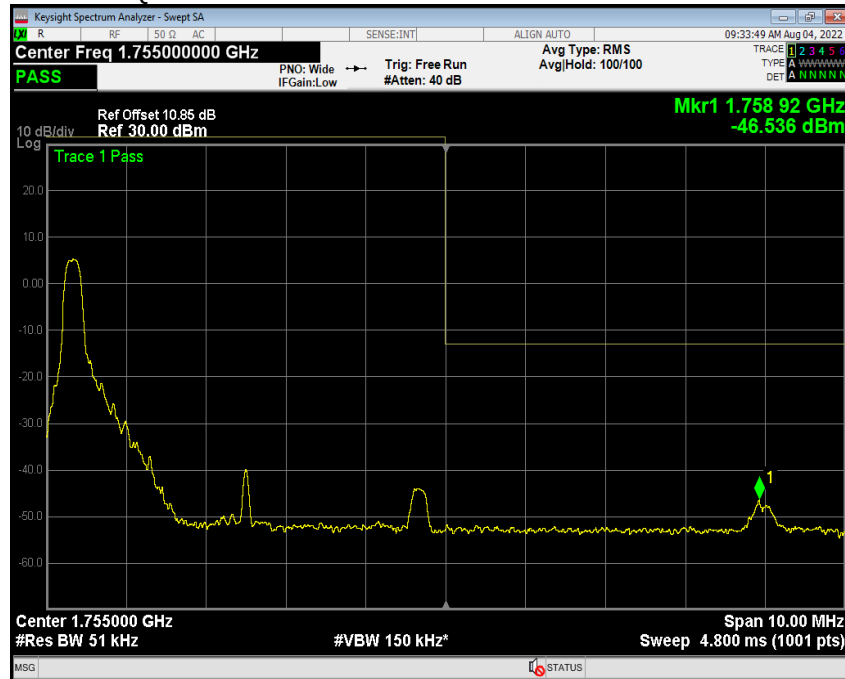


Band4 QAM16 BW=5MHz Channel=19975 RB Size=25 Position=#0

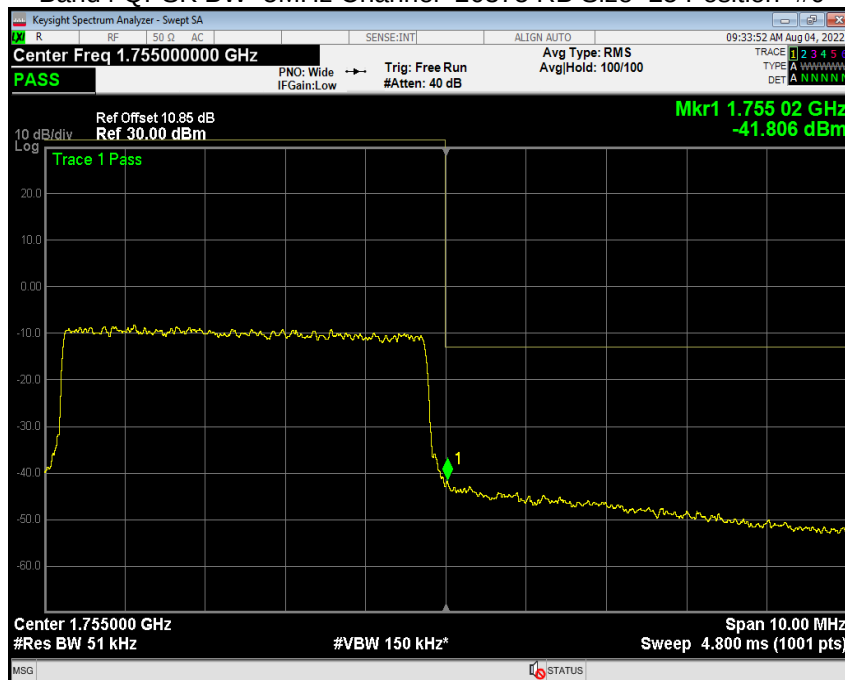




Band4 QPSK BW=5MHz Channel=20375 RB Size=1 Position=#0

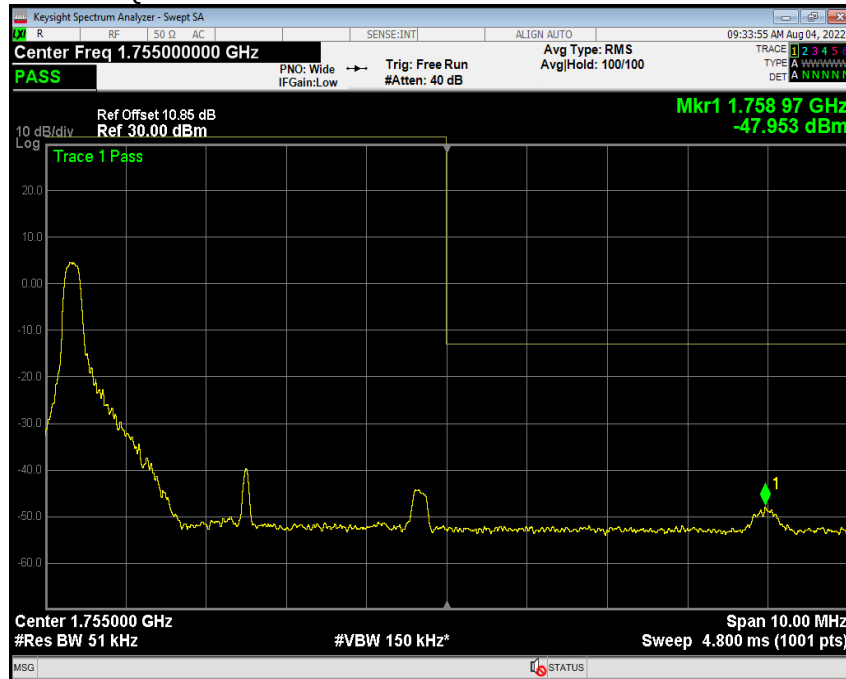


Band4 QPSK BW=5MHz Channel=20375 RB Size=25 Position=#0

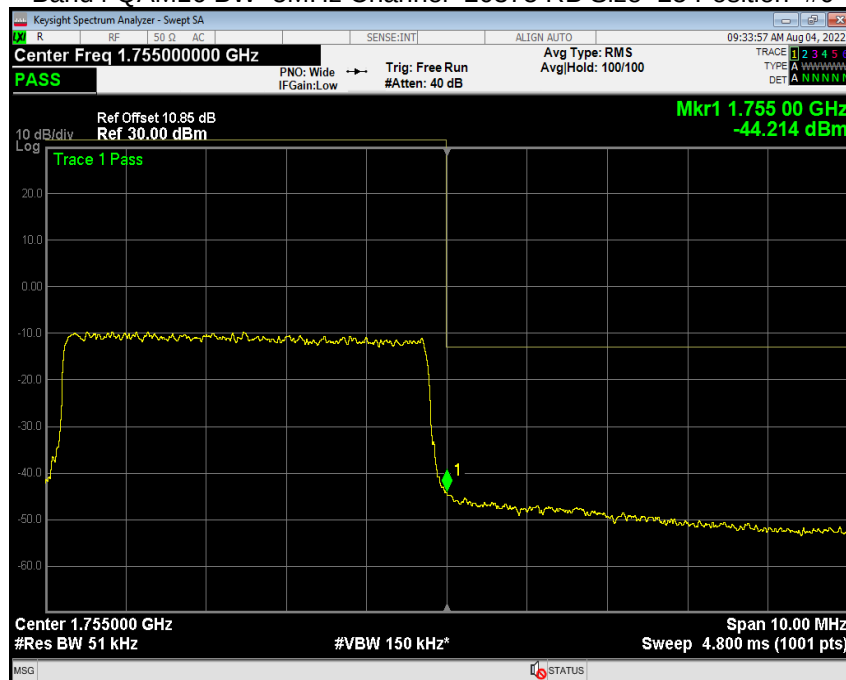




Band4 QAM16 BW=5MHz Channel=20375 RB Size=1 Position=#0

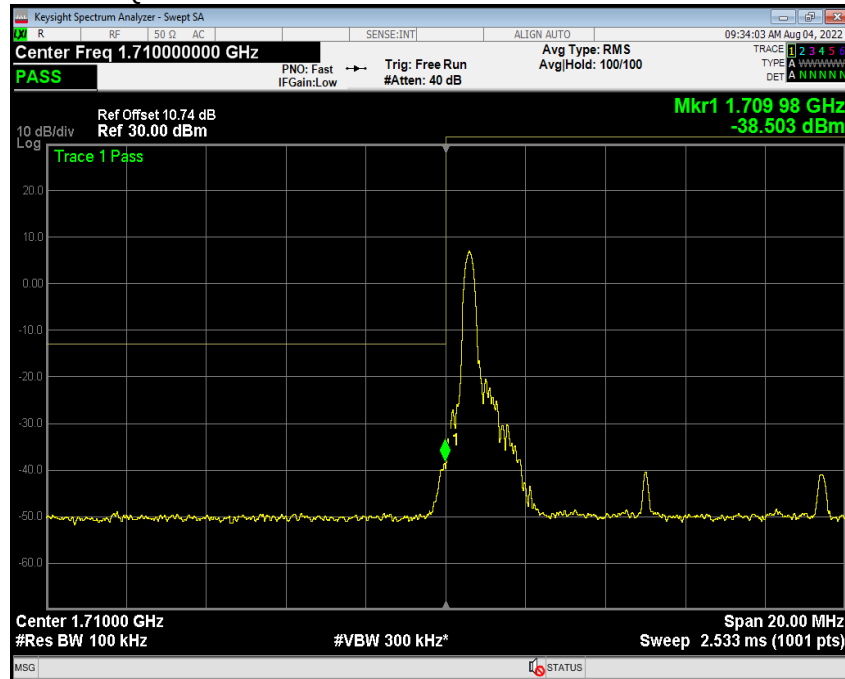


Band4 QAM16 BW=5MHz Channel=20375 RB Size=25 Position=#0

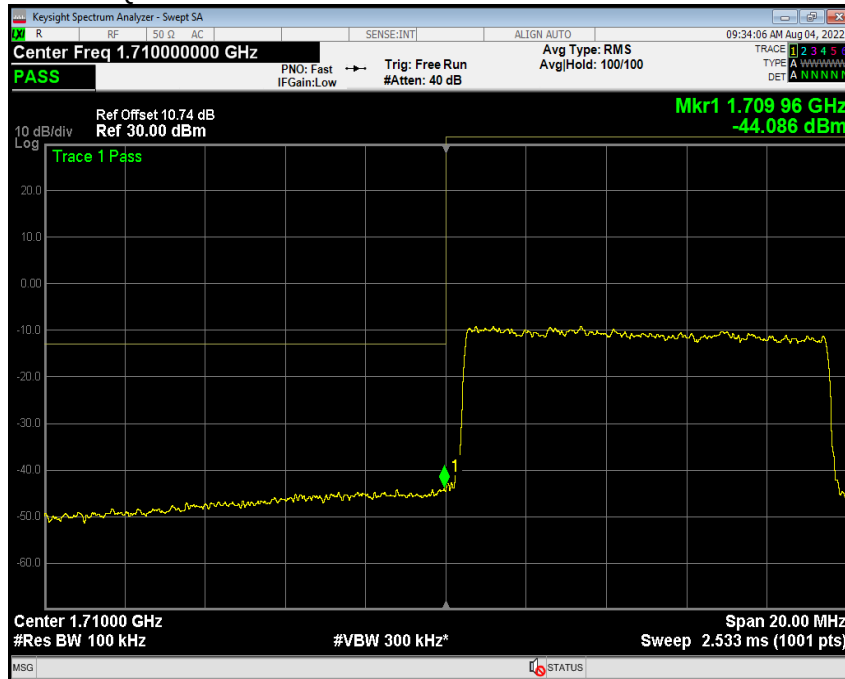




Band4 QPSK BW=10MHz Channel=20000 RB Size=1 Position=#0

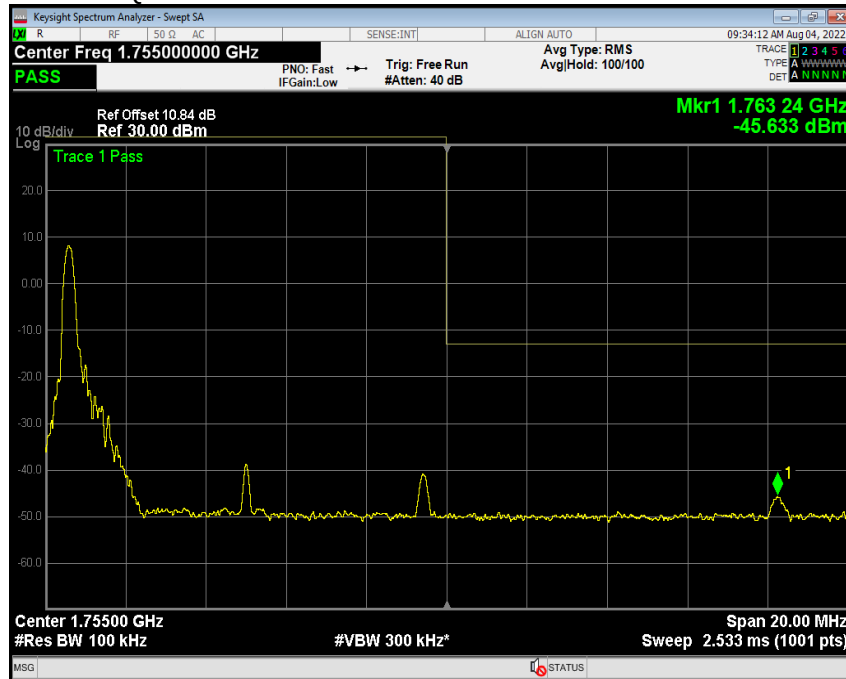


Band4 QPSK BW=10MHz Channel=20000 RB Size=50 Position=#0





Band4 QPSK BW=10MHz Channel=20350 RB Size=1 Position=#0

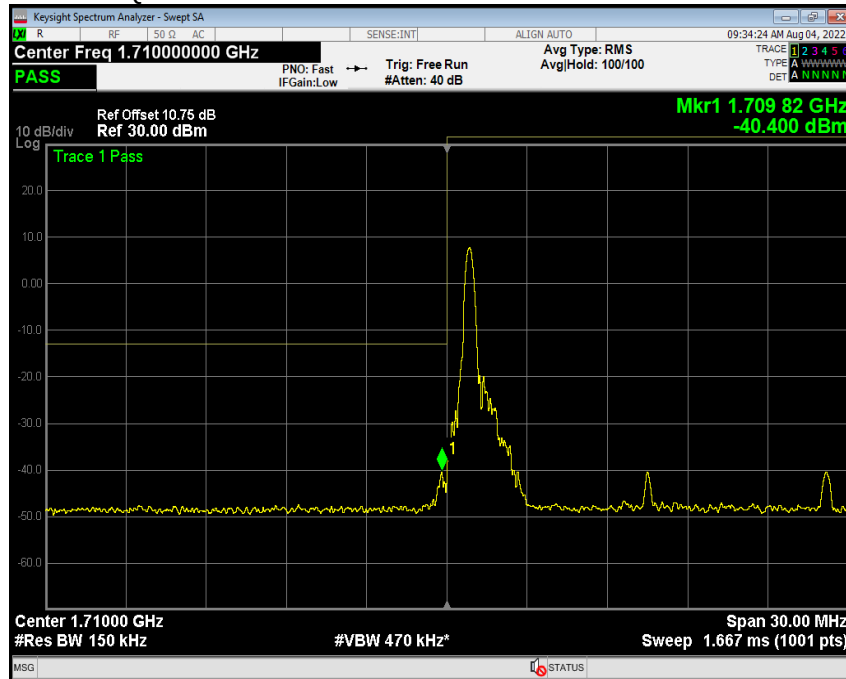


Band4 QPSK BW=10MHz Channel=20350 RB Size=50 Position=#0

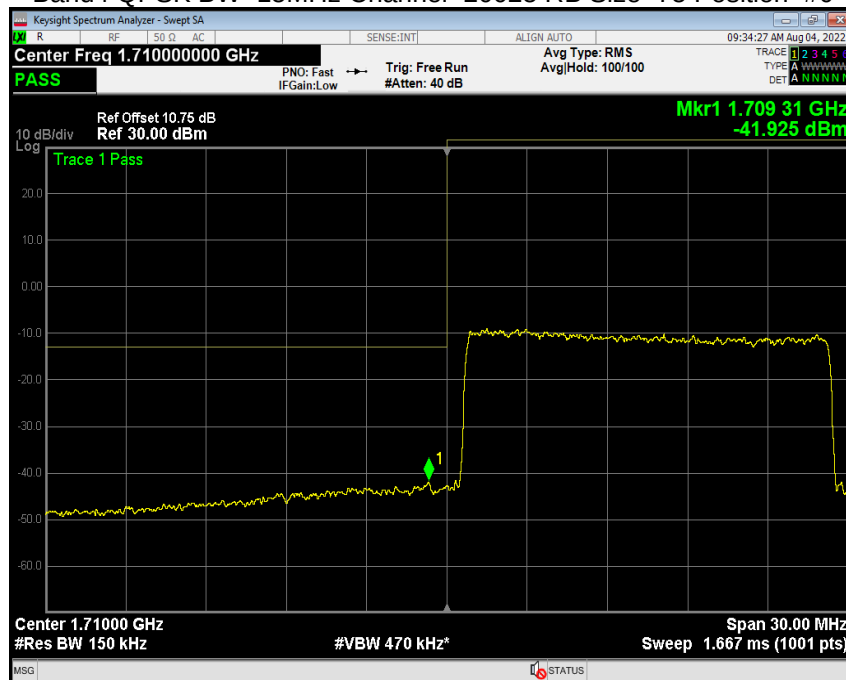




Band4 QPSK BW=15MHz Channel=20025 RB Size=1 Position=#0

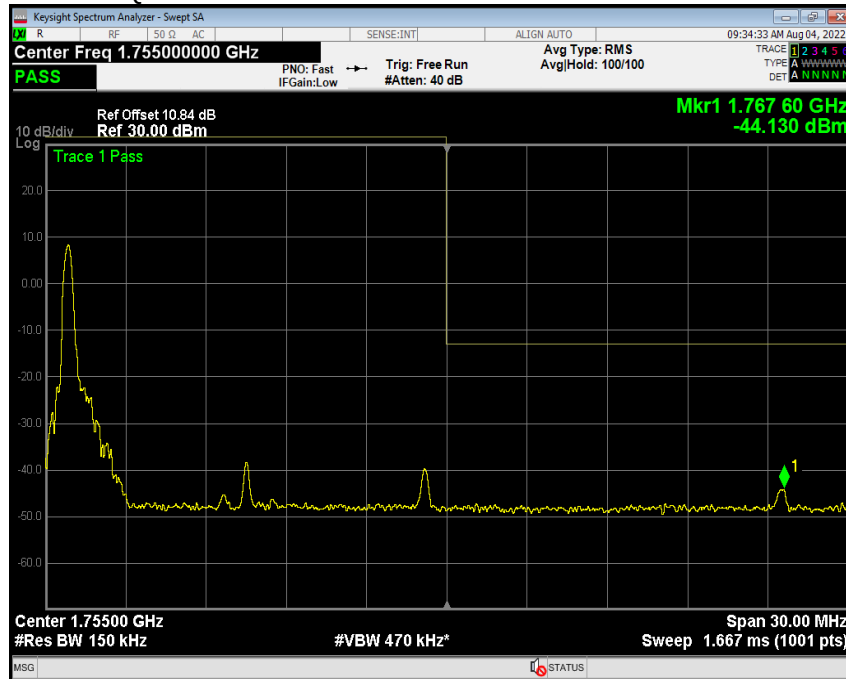


Band4 QPSK BW=15MHz Channel=20025 RB Size=75 Position=#0

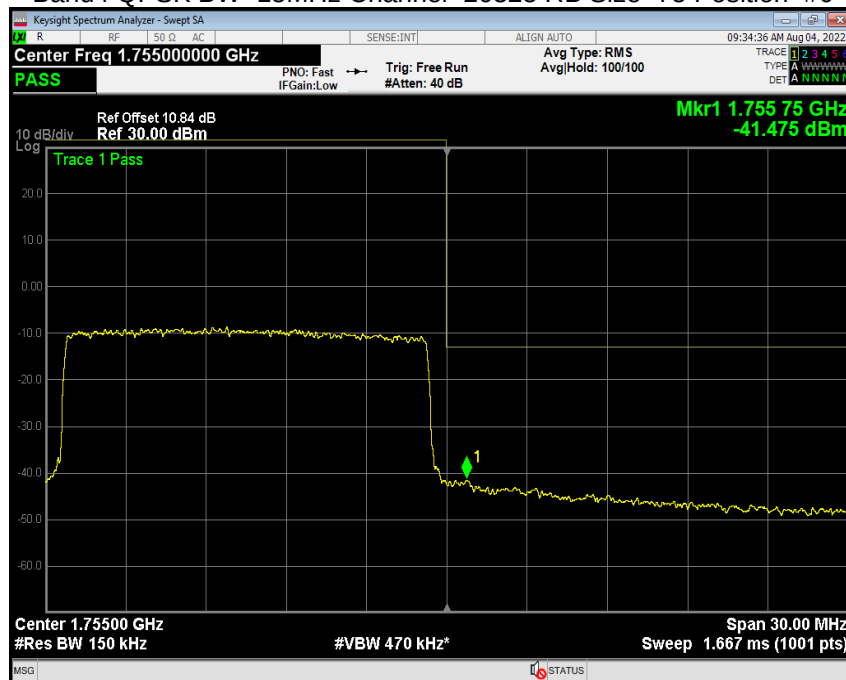




Band4 QPSK BW=15MHz Channel=20325 RB Size=1 Position=#0

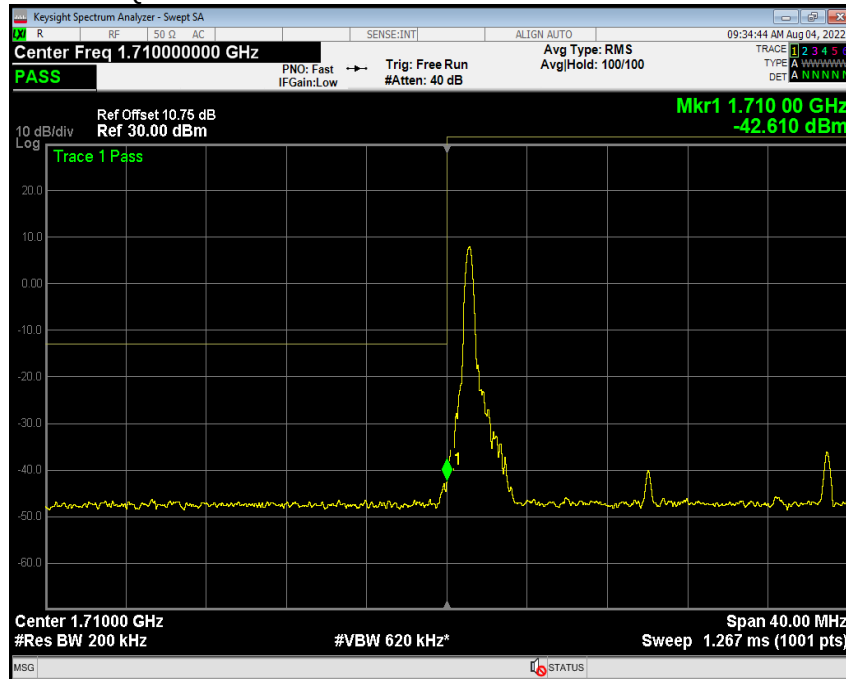


Band4 QPSK BW=15MHz Channel=20325 RB Size=75 Position=#0

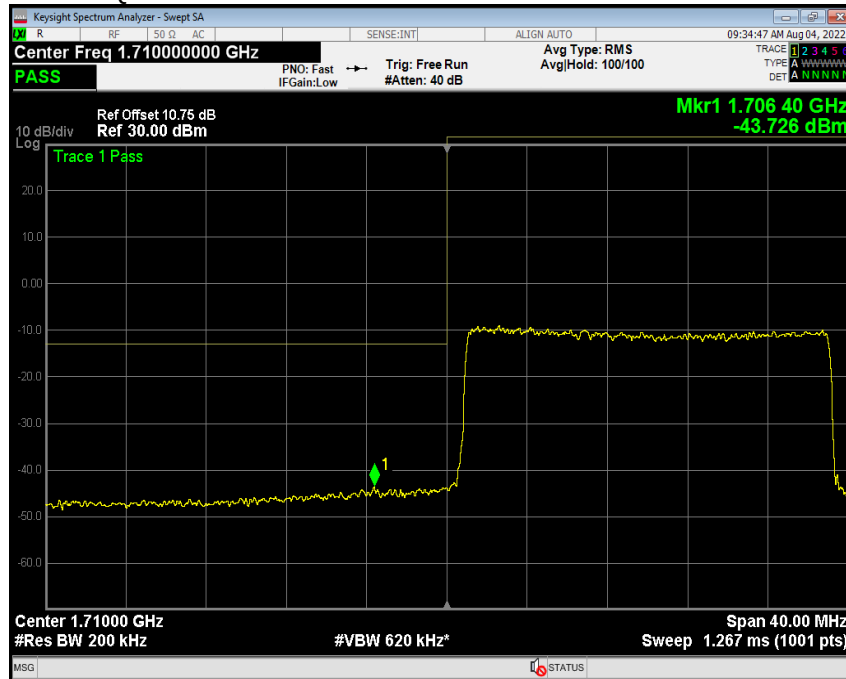




Band4 QPSK BW=20MHz Channel=20050 RB Size=1 Position=#0

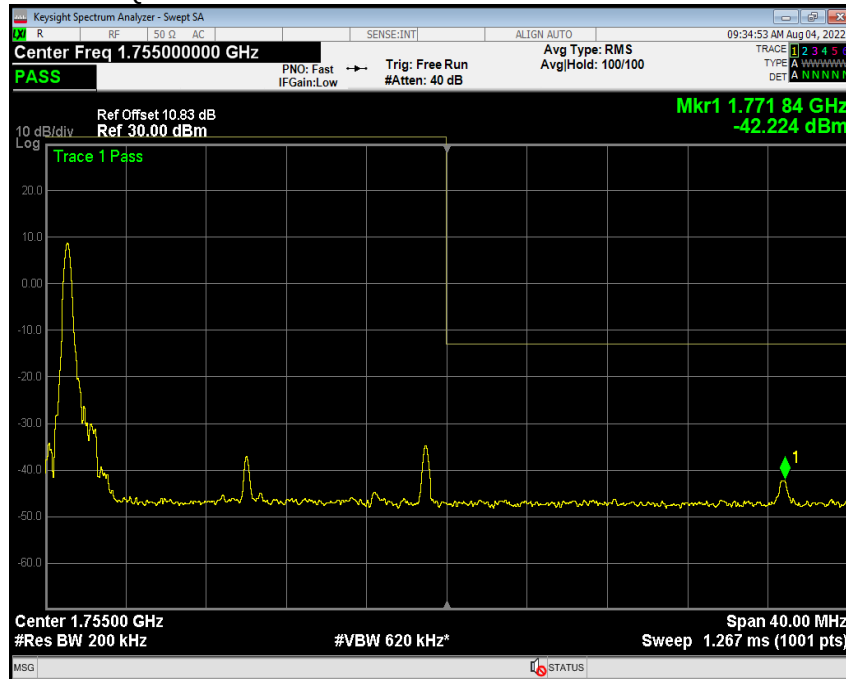


Band4 QPSK BW=20MHz Channel=20050 RB Size=100 Position=#0

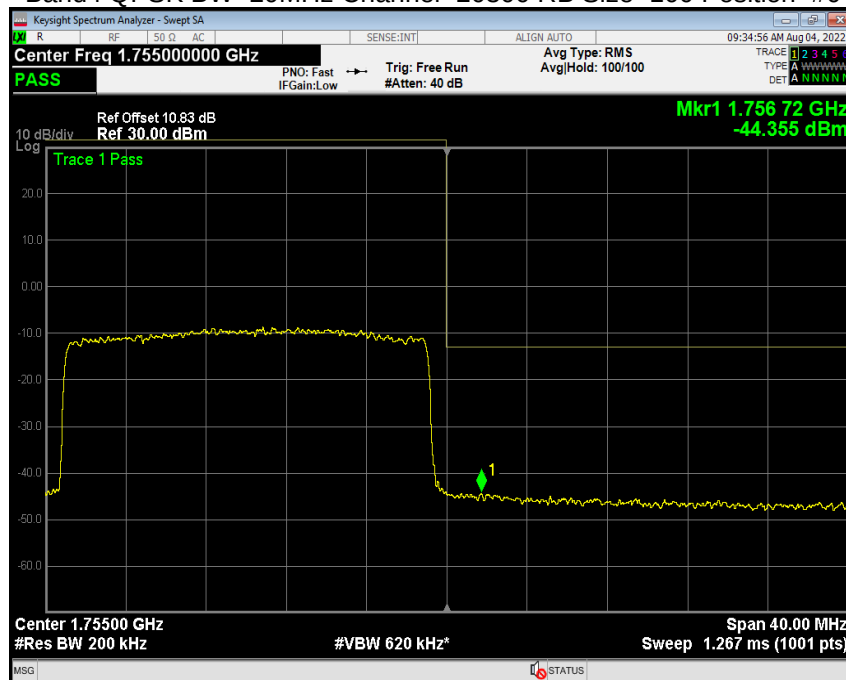




Band4 QPSK BW=20MHz Channel=20300 RB Size=1 Position=#0



Band4 QPSK BW=20MHz Channel=20300 RB Size=100 Position=#0



***** END *****