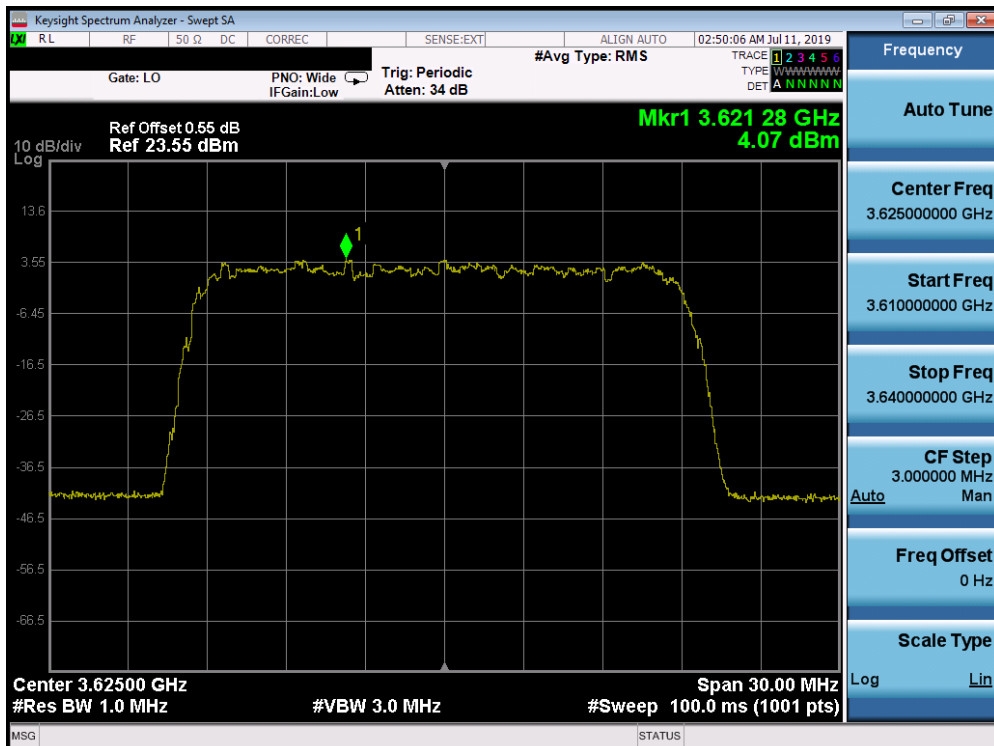
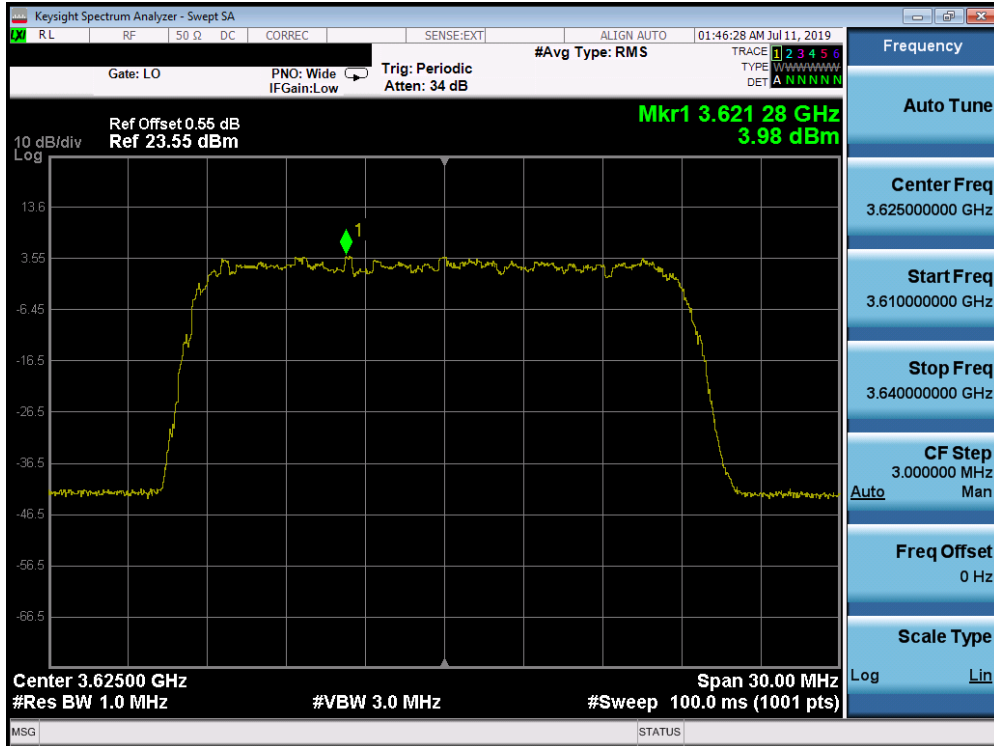


Plot 7-79. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 51

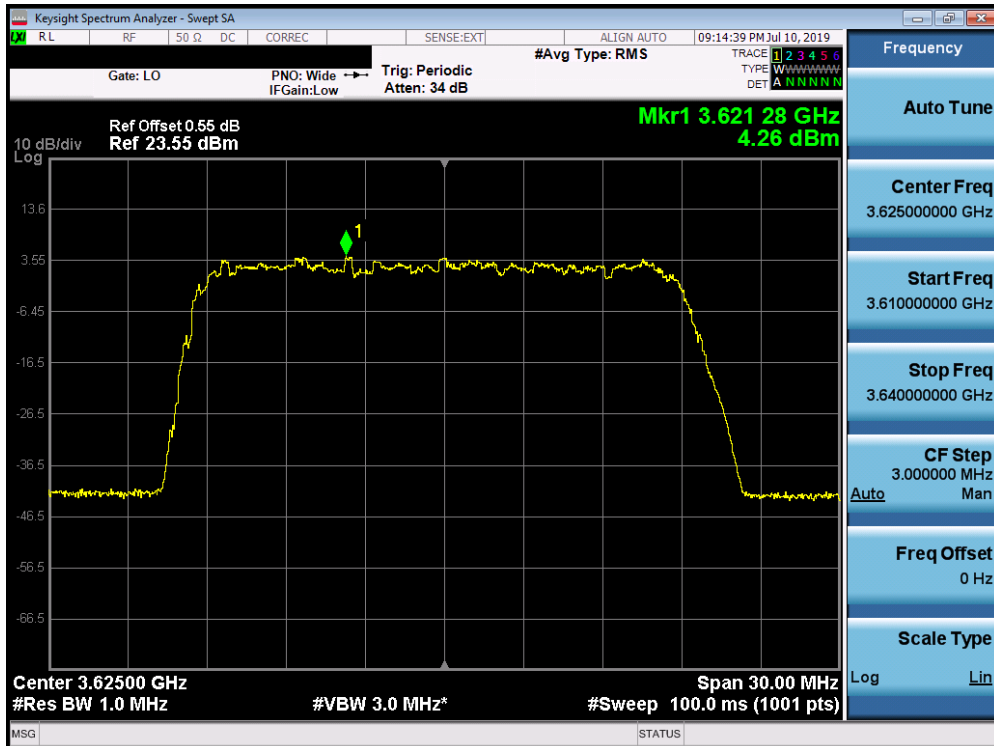


Plot 7-80. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 52

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 94 of 172

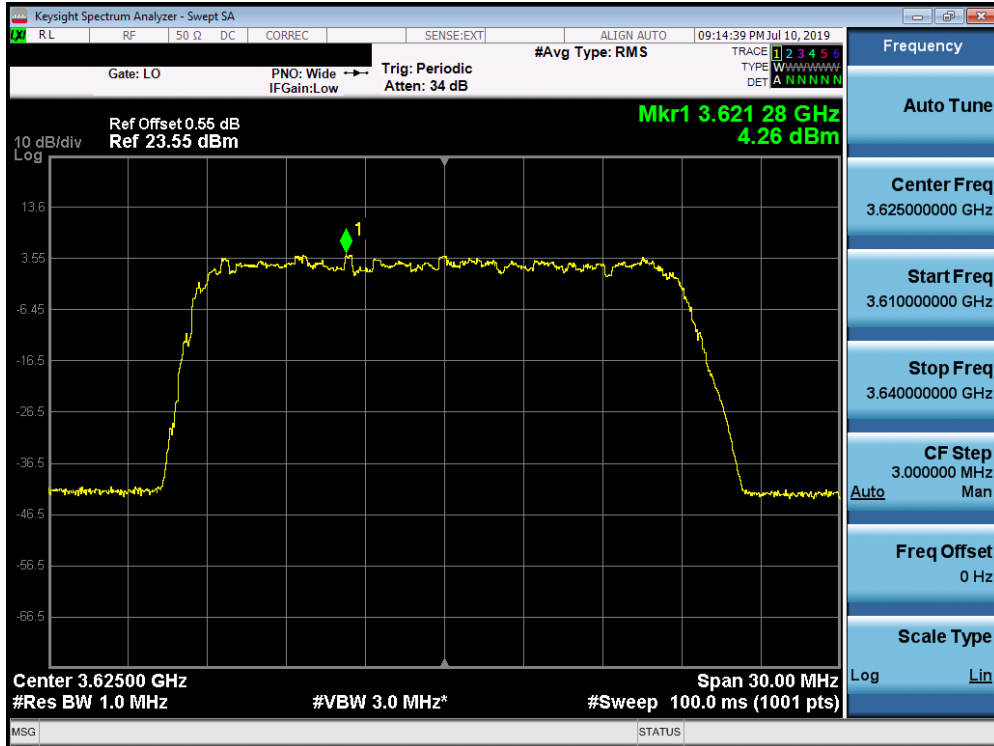


Plot 7-81. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 53

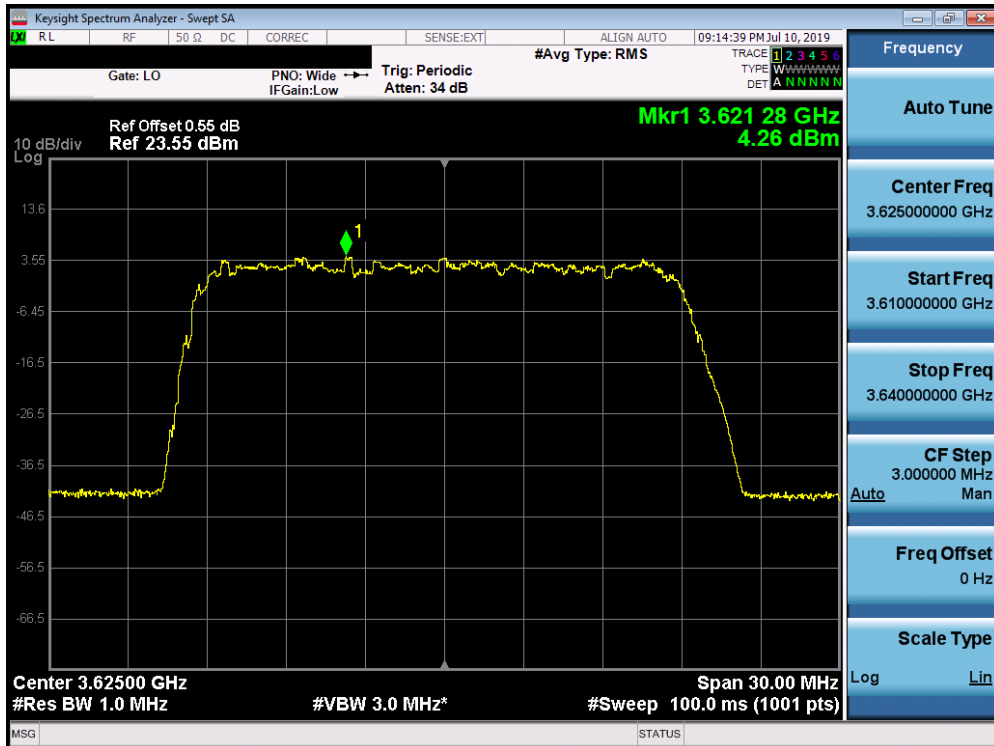


Plot 7-82. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 54

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 95 of 172

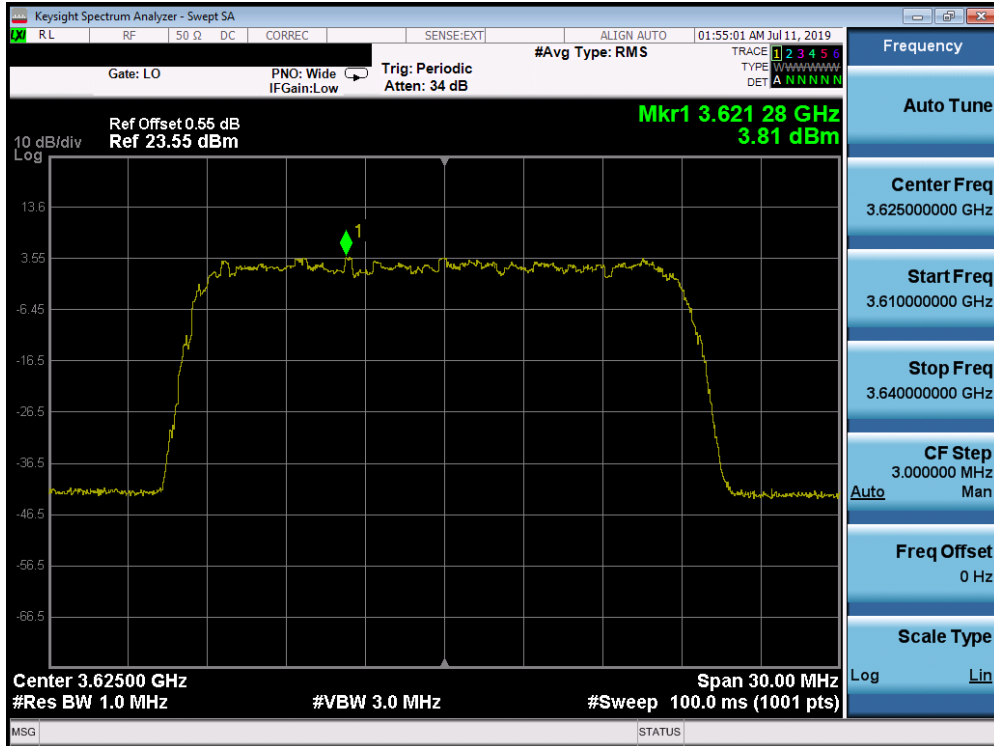


Plot 7-83. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 55

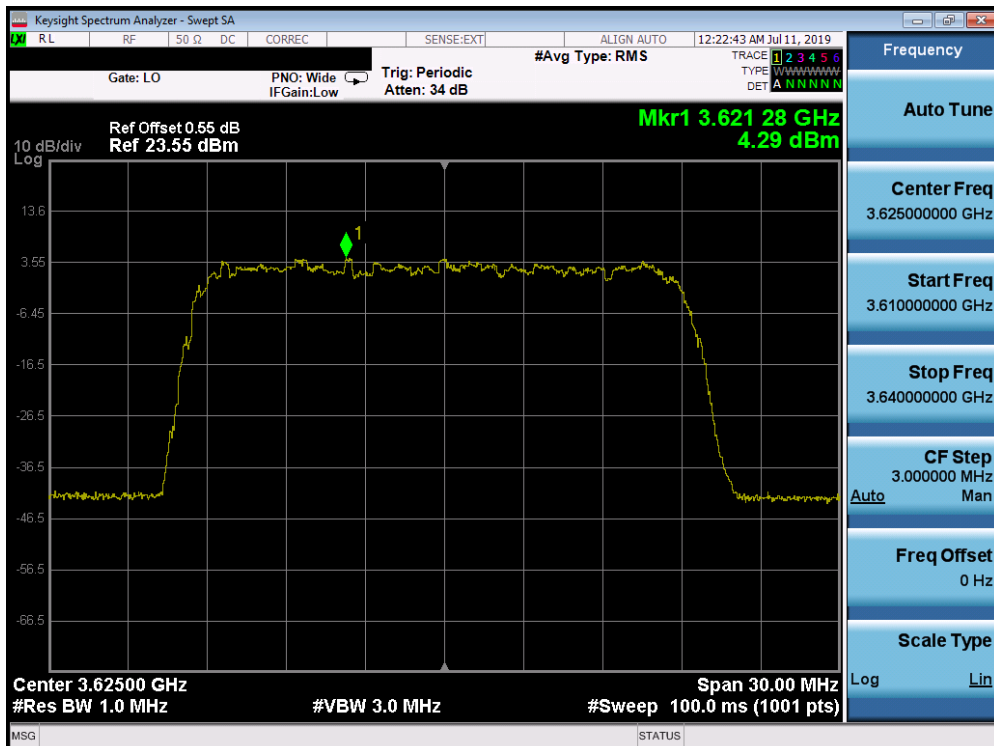


Plot 7-84. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 56

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 96 of 172

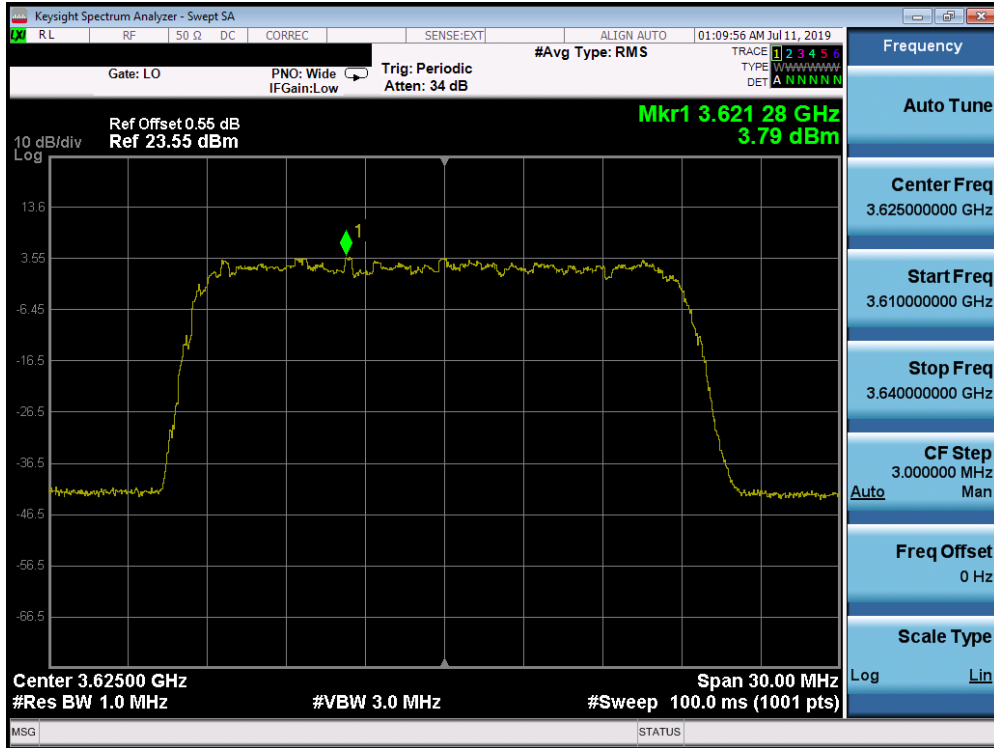


Plot 7-85. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 57

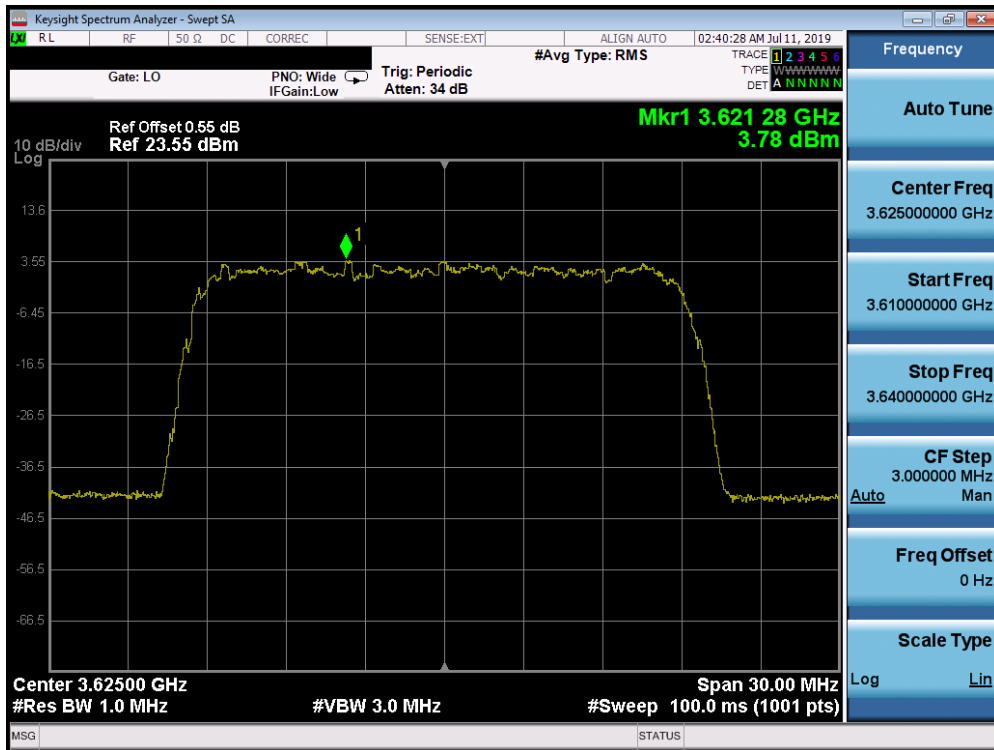


Plot 7-86. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 58

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 97 of 172

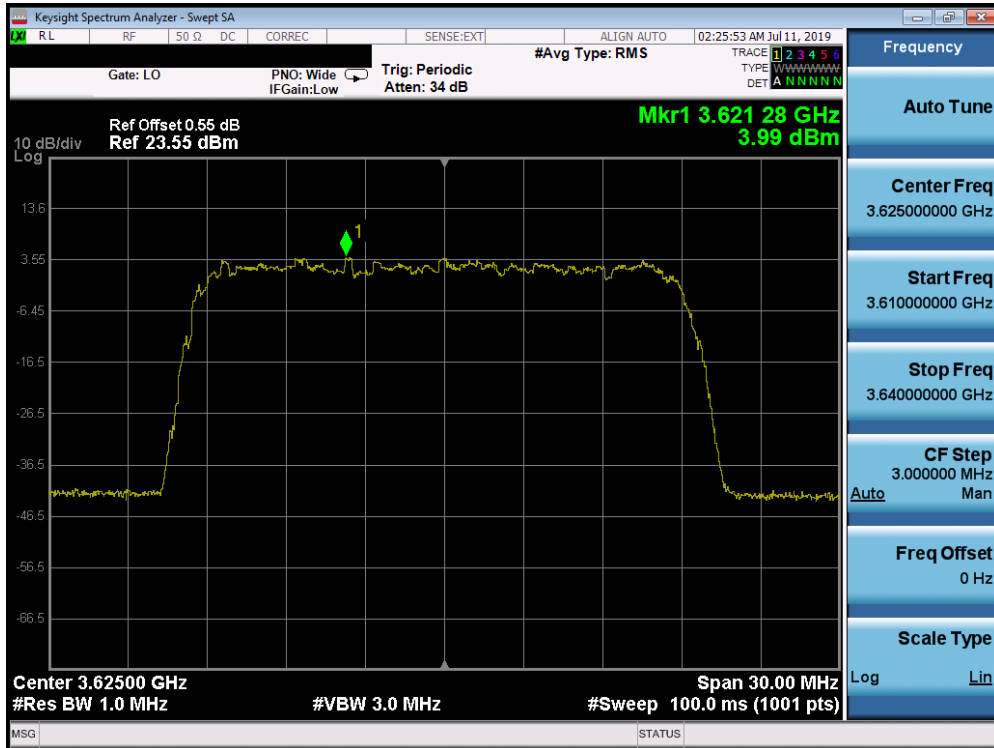


Plot 7-87. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 59

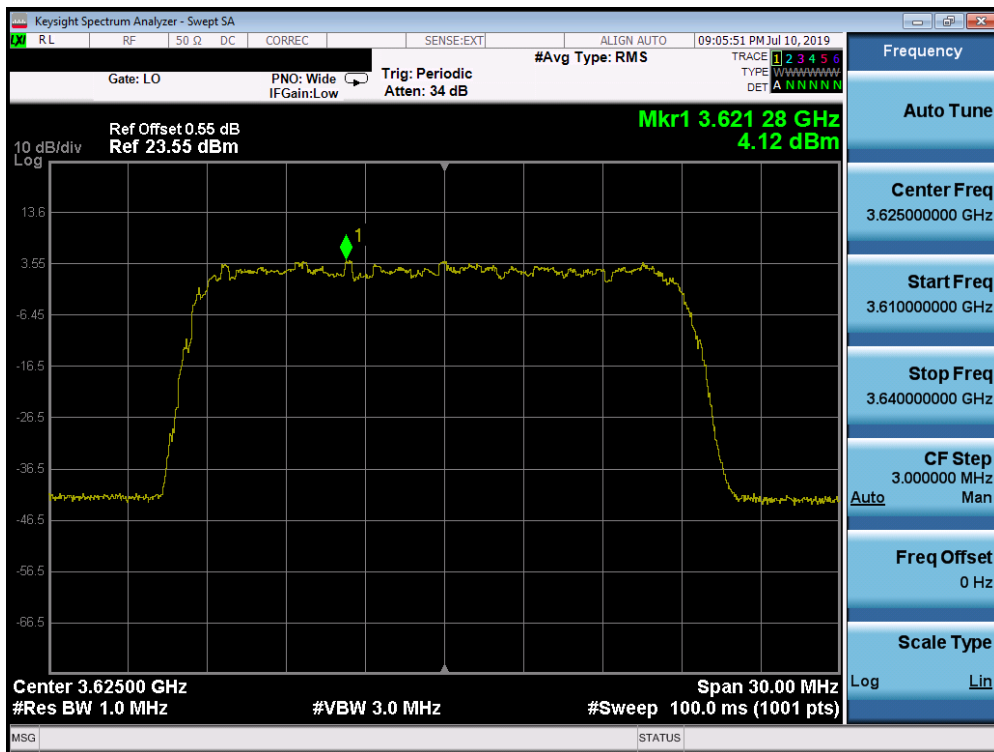


Plot 7-88. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 60

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 98 of 172

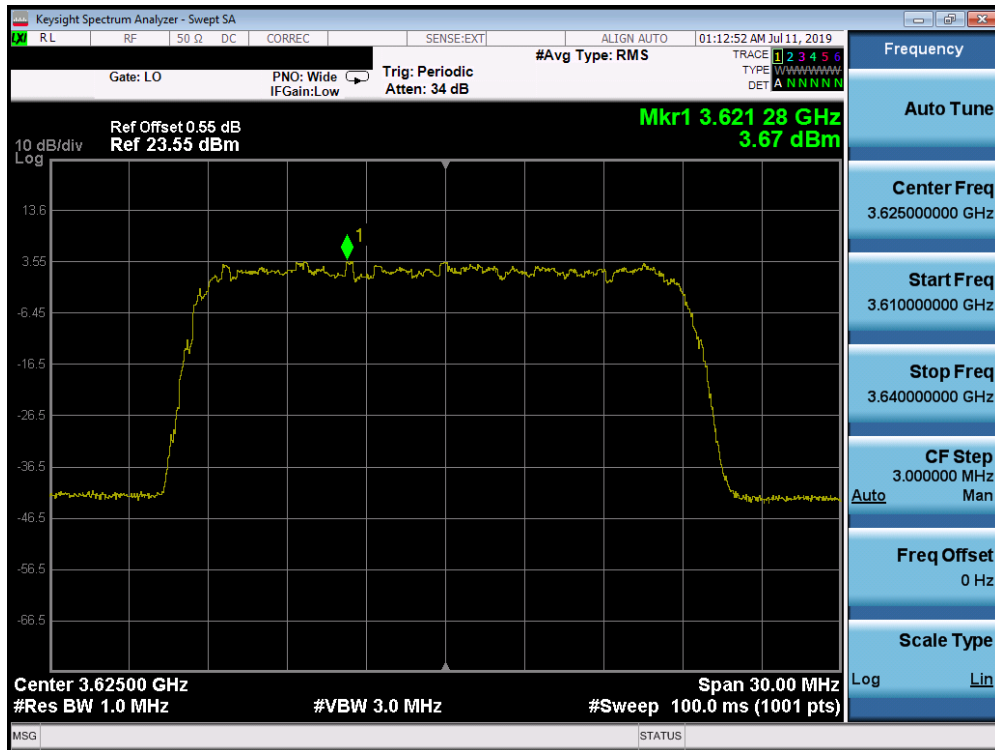


Plot 7-89. Peak Power Spectral Density Plot (1CC- 20.0MHz 16QAM- Mid Channel) Port 61



Plot 7-90. Peak Power Spectral Density Plot (1CC- 20.0MHz 16QAM- Mid Channel) Port 62

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 99 of 172



Plot 7-91. Peak Power Spectral Density Plot (1CC– 20.0MHz 16QAM- Mid Channel) Port 63

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 100 of 172

## 7.5 Peak-Average Ratio

§96.41(g)

### Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

### Test Procedure Used

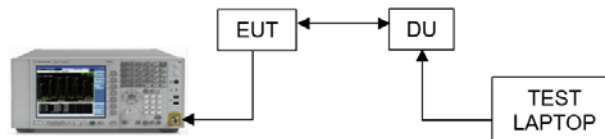
KDB 971168 D01 v03r01 – Section 5.7

### Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW  $\geq$  OBW or specified reference bandwidth
4. The signal analyzer was set to collect two million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed.
6. An RF-Burst triggering method ensured measurement in the on time of the signal.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



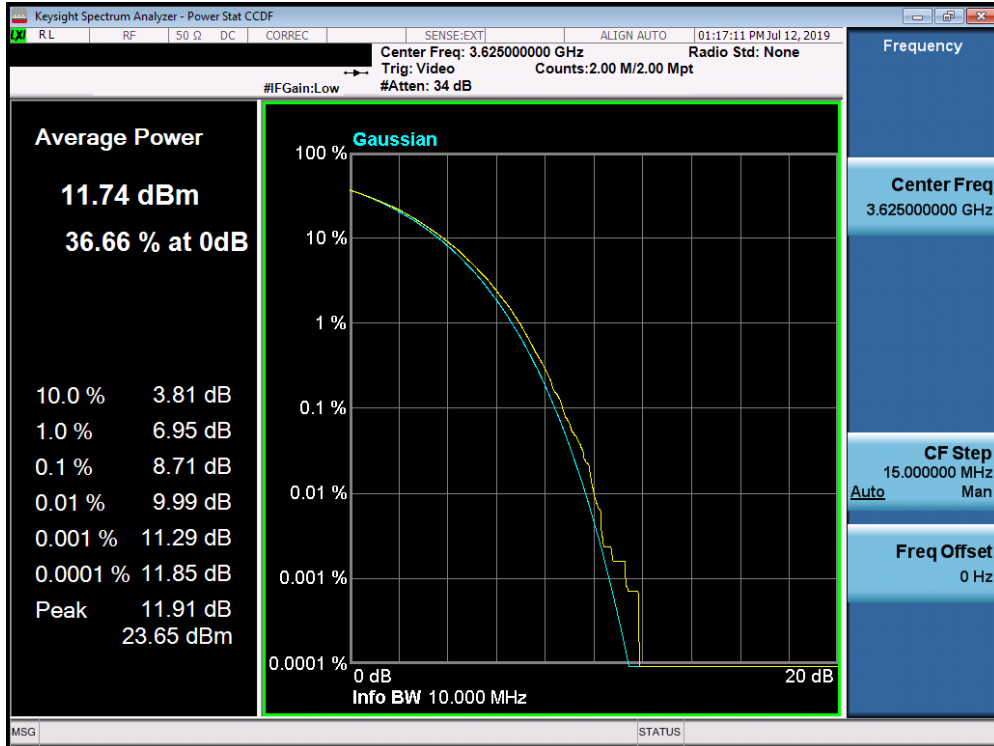
**Figure 7-4. Test Instrument & Measurement Setup**

### Test Notes

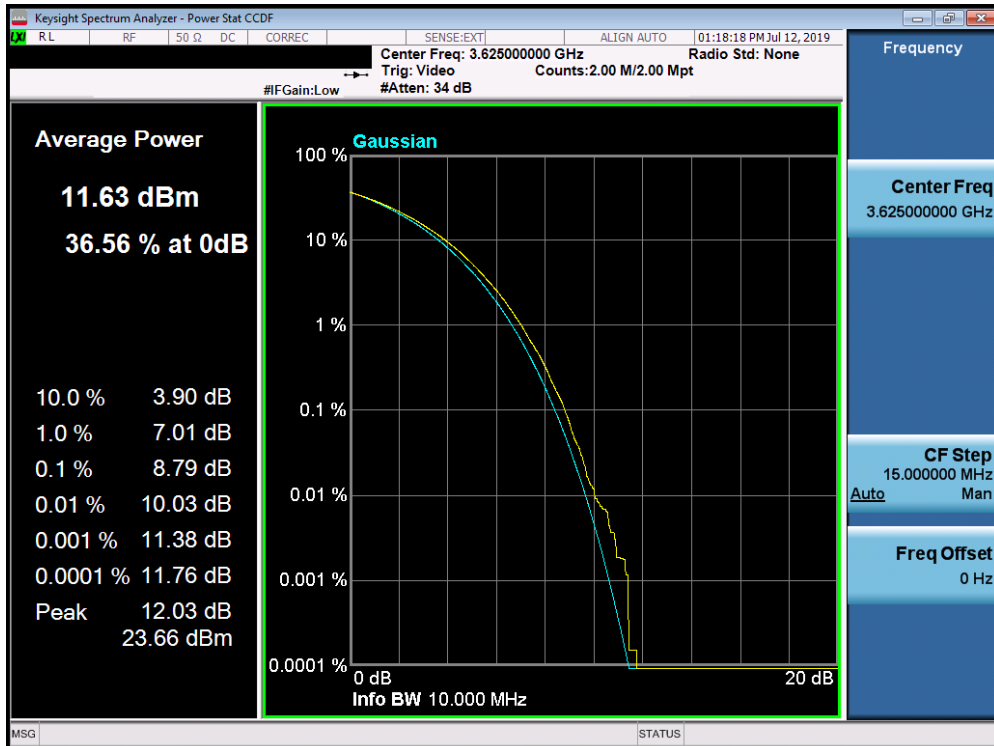
The PAR data is taken from the power with the highest output power on the mid channel. The deviation between peak and average power was found to be higher in 1CC compared to 2CC. Thus, 1CC was determined to be the worst case for PAR.

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBS		Page 101 of 172



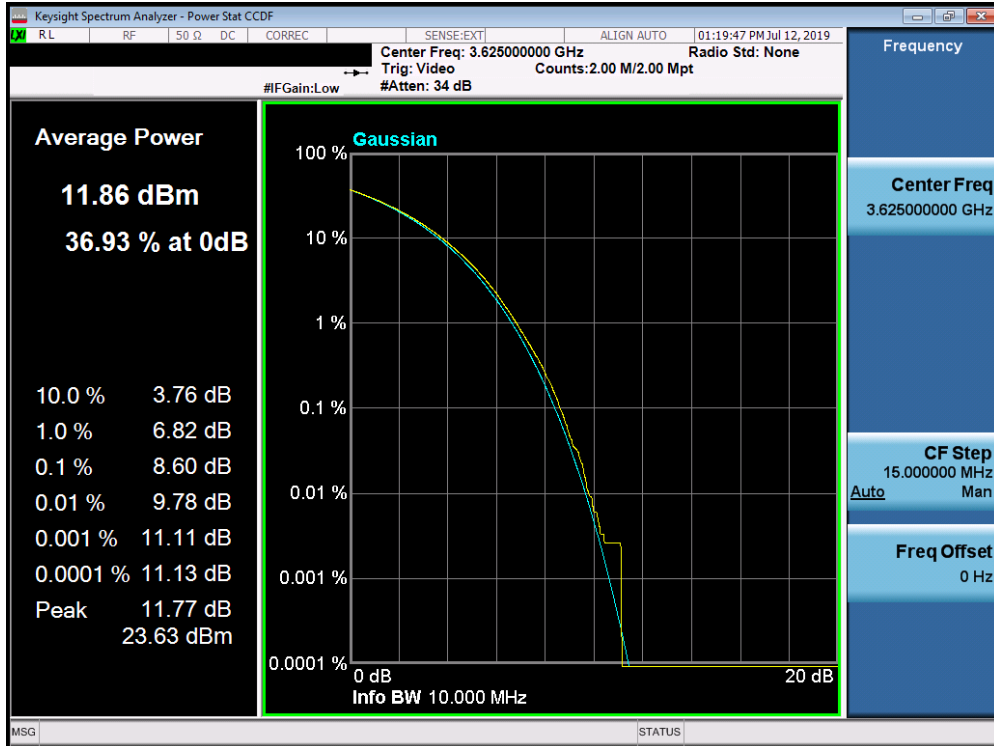


Plot 7-92. 16 User Beam PAR Plot (10.0MHz Total Bandwidth QPSK - Mid Channel-SISO)

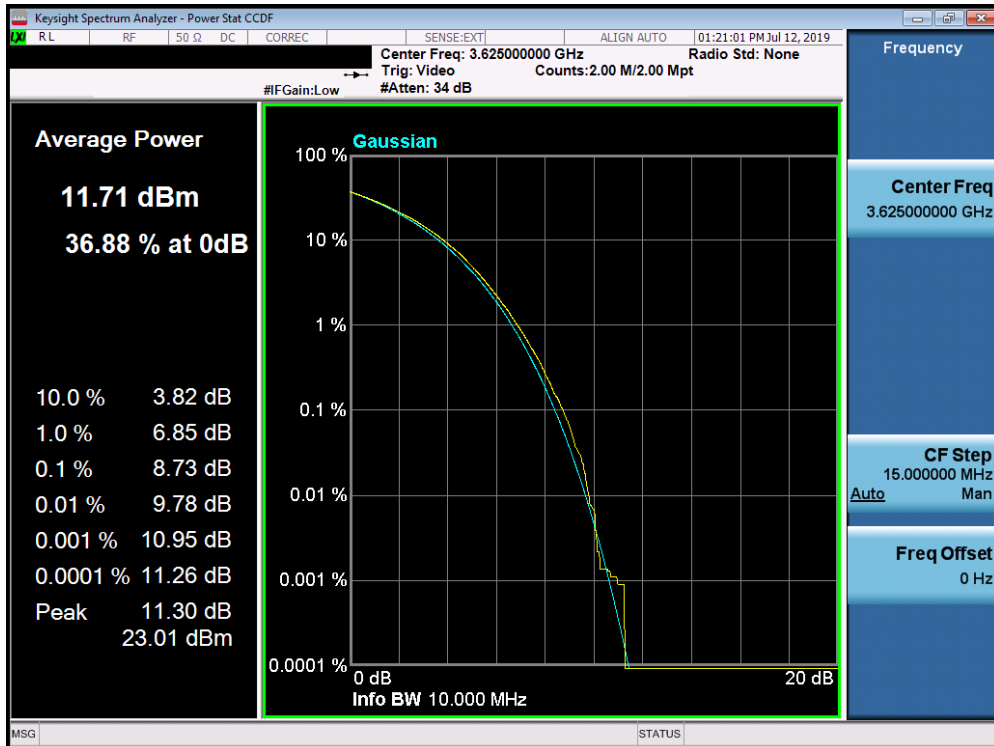


Plot 7-93. 16 User Beam PAR Plot (10.0MHz Total Bandwidth 16QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 102 of 172

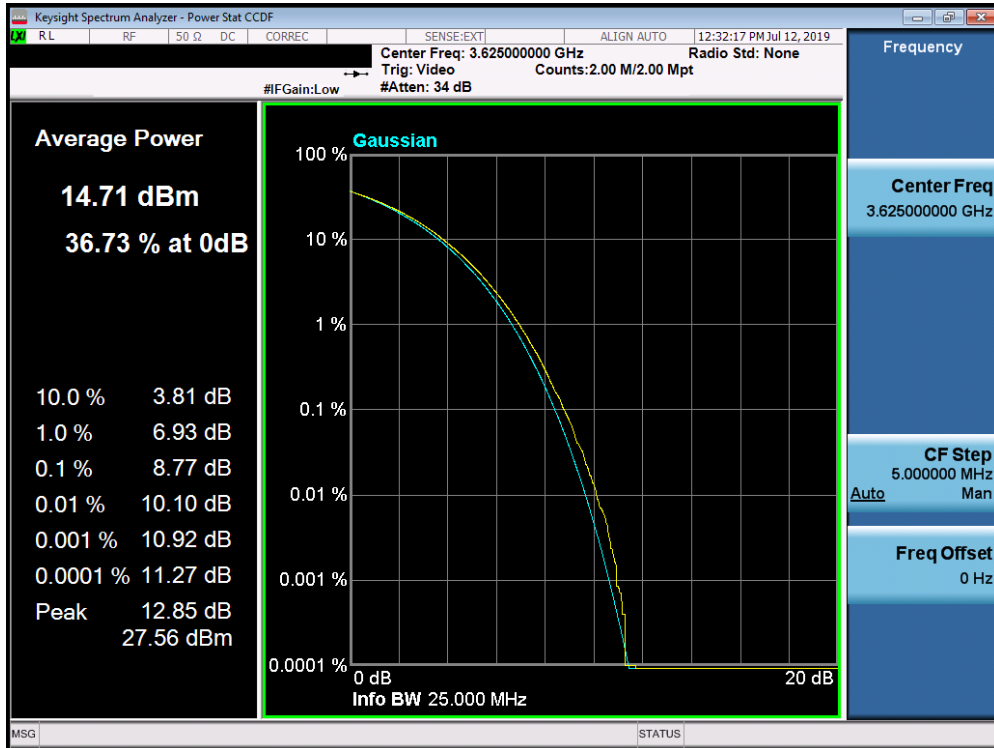


Plot 7-94. 16 User Beam PAR Plot (10.0MHz Total Bandwidth 64QAM - Mid Channel-SISO)

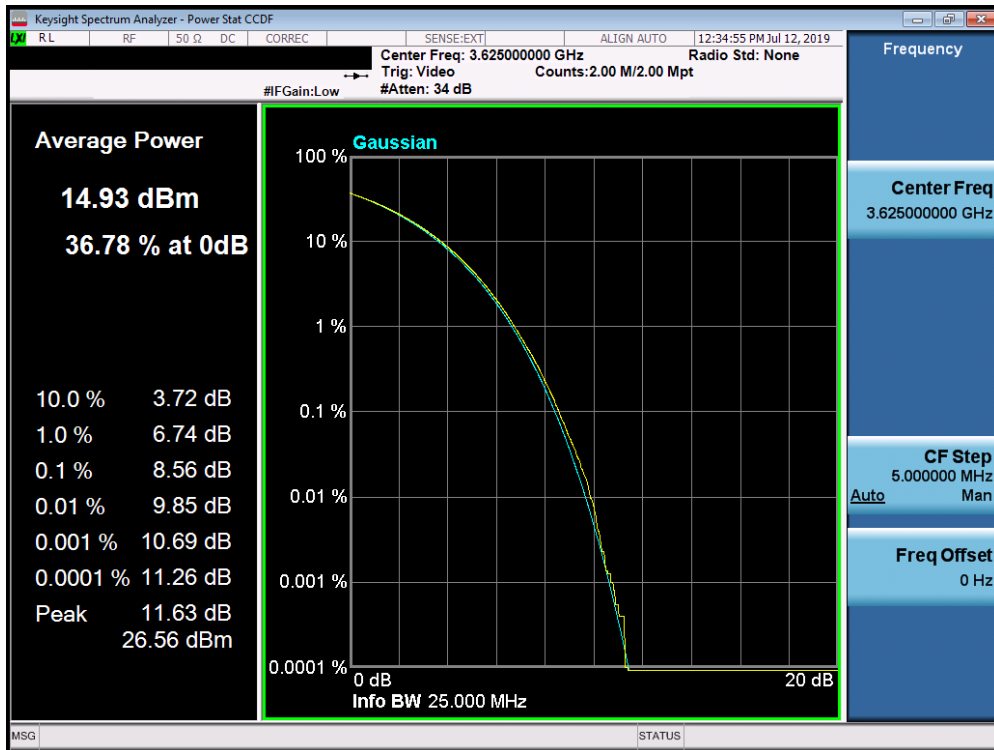


Plot 7-95. 16 User Beam PAR Plot (10.0MHz Total Bandwidth 256QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 103 of 172

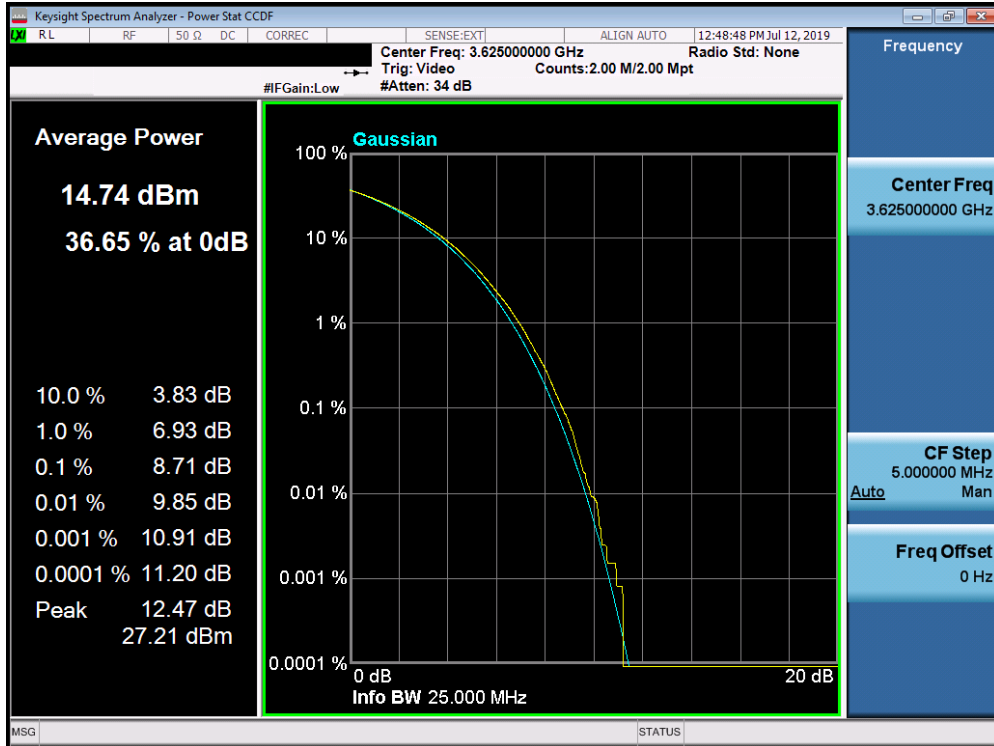


Plot 7-96. 16 User Beam PAR Plot (20.0MHz Total Bandwidth QPSK - Mid Channel-SISO)

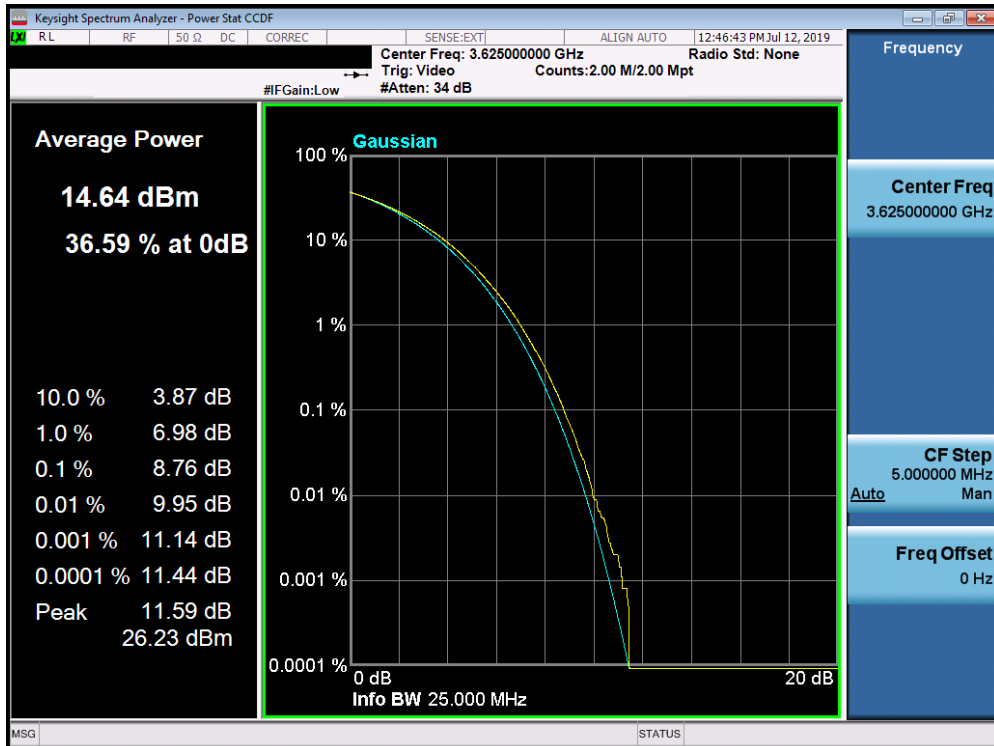


Plot 7-97. 16 User Beam PAR Plot (20.0MHz Total Bandwidth 16QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 104 of 172



Plot 7-98. 16 User Beam PAR Plot (20.0MHz Total Bandwidth 64QAM - Mid Channel-SISO)



Plot 7-99. 16 User Beam PAR Plot (20.0MHz Total Bandwidth 256QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 105 of 172

ACLRRResults



14:50:13 17.07.2019

Plot 7-100. 16 User Beam PAR Plot (30.0MHz Total Bandwidth QPSK - Mid Channel-SISO)

ACLRRResults



14:45:25 17.07.2019

Plot 7-101. 16 User Beam PAR Plot (30.0MHz Total Bandwidth 16QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 106 of 172



Plot 7-102. 16 User Beam PAR Plot (30.0MHz Total Bandwidth 64QAM - Mid Channel-SISO)



Plot 7-103. 16 User Beam PAR Plot (30.0MHz Total Bandwidth 256QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 107 of 172

ACLRRResults



18:57:21 17.07.2019

Plot 7-104. 16 User Beam PAR Plot (40.0MHz Total Bandwidth QPSK - Mid Channel-SISO)

ACLRRResults



18:58:42 17.07.2019

Plot 7-105. 16 User Beam PAR Plot (40.0MHz Total Bandwidth 16QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 108 of 172



19:00:43 17.07.2019

Plot 7-106. 16 User Beam PAR Plot (40.0MHz Total Bandwidth 64QAM - Mid Channel-SISO)



19:01:44 17.07.2019

Plot 7-107. 16 User Beam PAR Plot (40.0MHz Total Bandwidth 256QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 109 of 172



ACLRRResults



19:16:06 17.07.2019

Plot 7-108. 16 User Beam PAR Plot (50.0MHz Total Bandwidth QPSK - Mid Channel-SISO)

ACLRRResults



19:18:44 17.07.2019

Plot 7-109. 16 User Beam PAR Plot (50.0MHz Total Bandwidth 16QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 110 of 172

ACLRRResults



19:20:49 17.07.2019

Plot 7-110. 16 User Beam PAR Plot (50.0MHz Total Bandwidth 64QAM - Mid Channel-SISO)

ACLRRResults



19:22:18 17.07.2019

Plot 7-111. 16 User Beam PAR Plot (50.0MHz Total Bandwidth 256QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 111 of 172

ACLRRResults



Plot 7-112. 16 User Beam PAR Plot (60.0MHz Total Bandwidth QPSK - Mid Channel-SISO)

ACLRRResults



Plot 7-113. 16 User Beam PAR Plot (60.0MHz Total Bandwidth 16QAM - Mid Channel-SISO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 112 of 172



15:25:07 17.07.2019

**Plot 7-114. 16 User Beam PAR Plot (60.0MHz Total Bandwidth 64QAM - Mid Channel-SISO)**



15:26:24 17.07.2019

**Plot 7-115. 16 User Beam PAR Plot (60.0MHz Total Bandwidth 256QAM - Mid Channel-SISO)**

FCC ID: A3LMT6402-48A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 113 of 172

## 7.6 Spurious and Harmonic Emissions at Antenna Terminal §2.1051 §96.41(e)

### Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

**The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/Mhz.**

### Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

KDB 662911 D01 v02r01 – Section E)3) Out-of-Band and Spurious Emission Measurements

- a) Absolute Emission Limits
  - (iii) Measure and add 10 log(NANT) Db

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 \* the fundamental frequency (separated into at least two plots per channel)
  1. Trace mode and Detector= RMS
  2. Sweep time = auto couple
  3. The trace was allowed to stabilize
  4. Please see test notes below for RBW and VBW settings

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

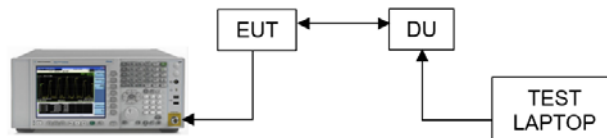



Figure 7-5. Test Instrument & Measurement Setup

### Test Notes

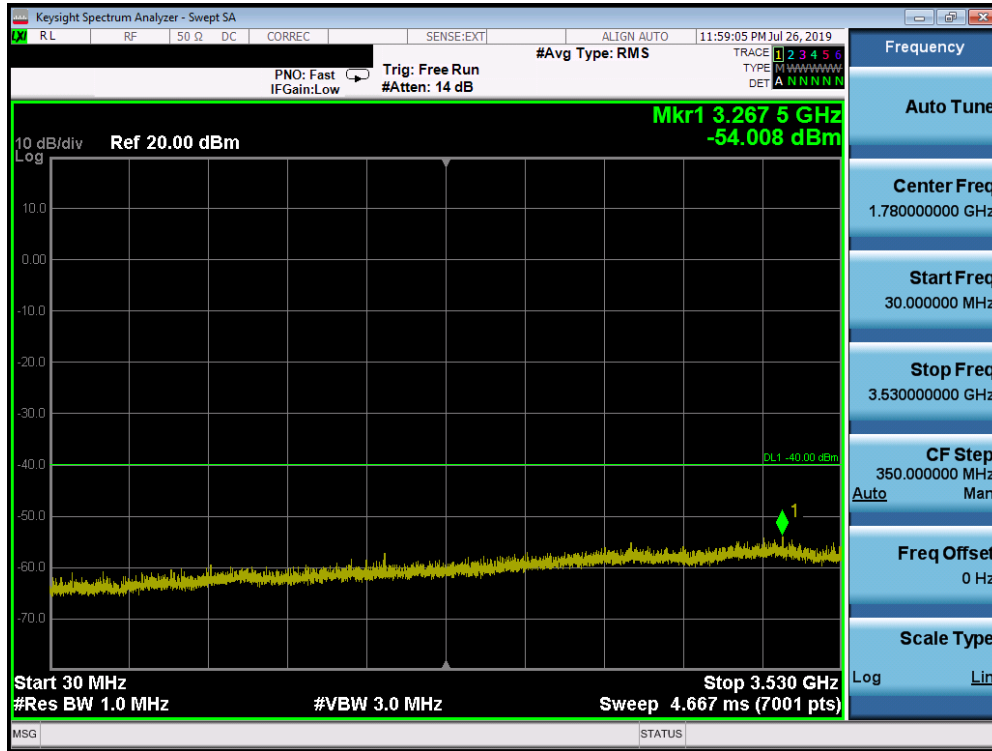
1. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBS		Page 114 of 172

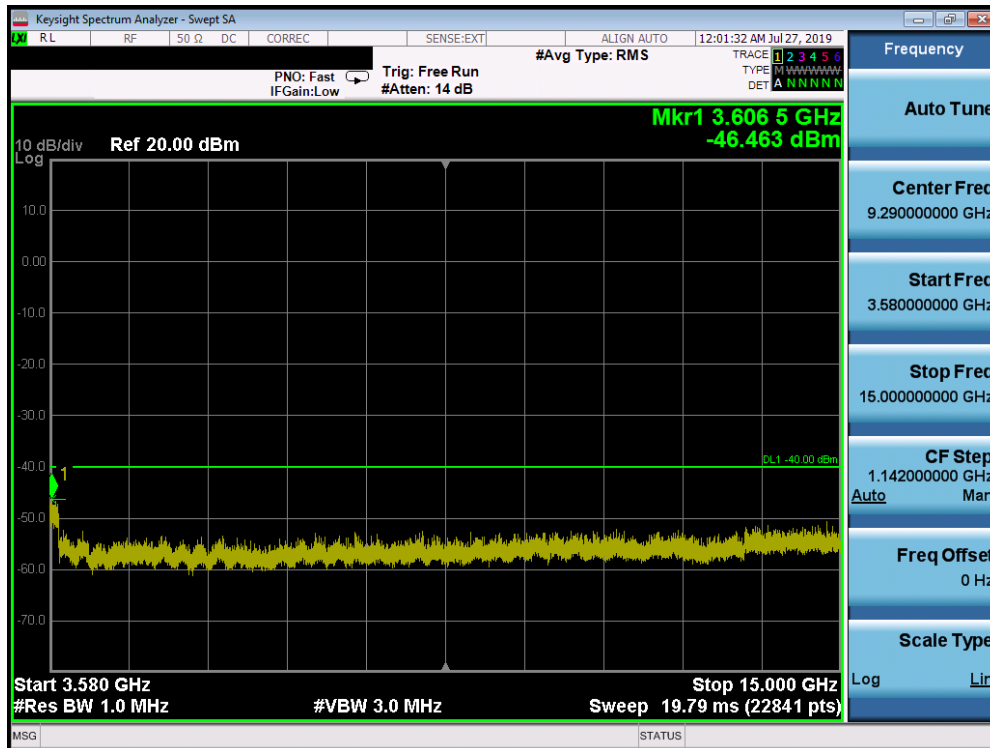
2. 16 user beam mode is the worst case mode and all conducted spurious emissions are measured in this mode.
3. The modulation 16QAM for single carrier is the worst case.
4. Mid Channel SISO and MIMO plots are measured.
  - a. MIMO plots show the conducted spurious emissions with all 64 transmit ports combined.
  - b. The offset calculation:  
 $10 \cdot \log(64) = 18.06 \text{ dB}$   
 This value has been added in the MIMO Plots.  
 Refer KDB 662911 D01 v02r01 – Section E)2)c) for details.

<b>FCC ID:</b> A3LMT6402-48A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1907220128-01.	<b>Test Dates:</b> 7/1/2019-7/29/2019	<b>EUT Type:</b> Massive MIMO CBSD	Page 115 of 172	

# 1CC Low Channel MIMO

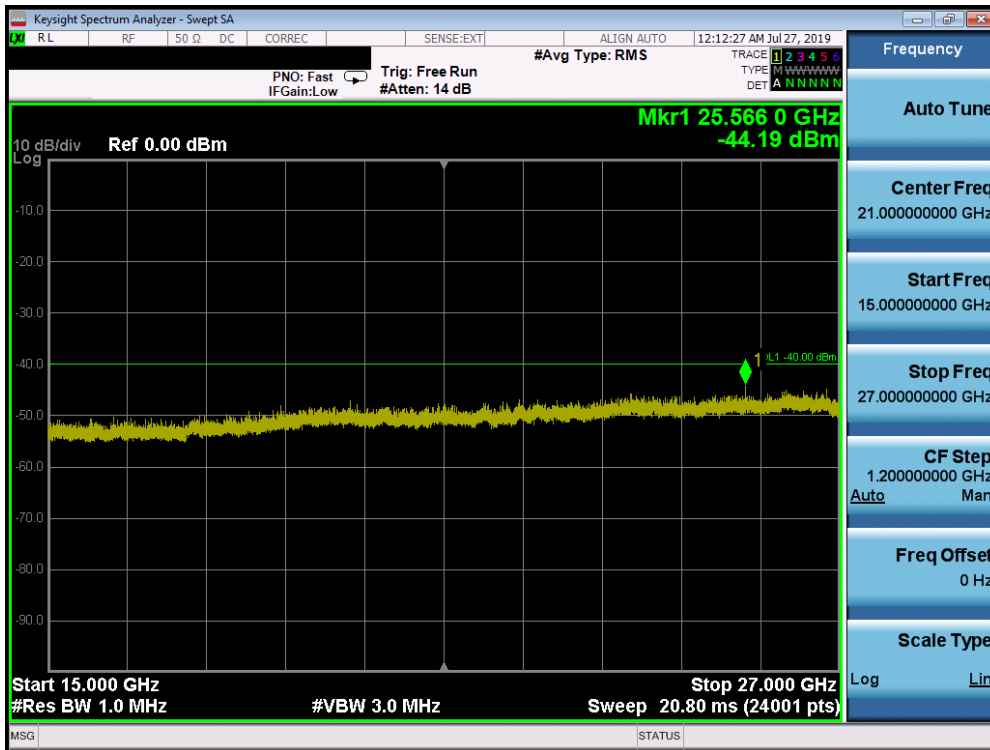


Plot 7-116. Conducted Spurious Plot (20.0MHz 16QAM - Low Channel-MIMO)

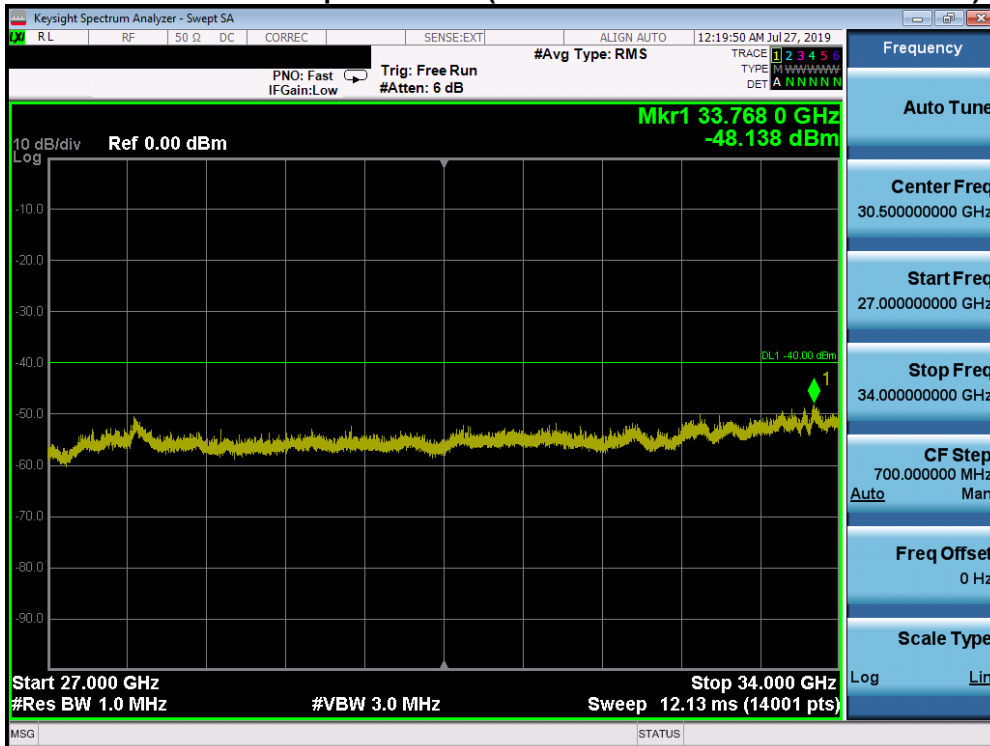


Plot 7-117. Conducted Spurious Plot (20.0MHz 16QAM - Low Channel-MIMO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 116 of 172



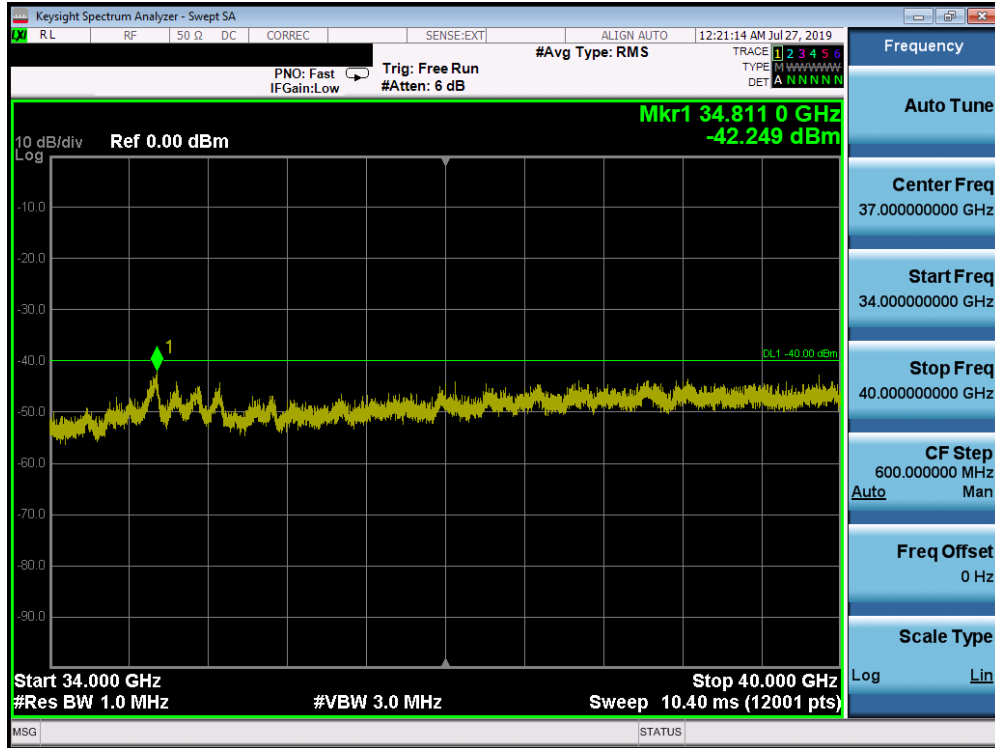
Plot 7-118. Conducted Spurious Plot (20.0MHz 16QAM - Low Channel-MIMO)




Plot 7-119. Conducted Spurious Plot (20.0MHz 16QAM - Low Channe-MIMO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 117 of 172

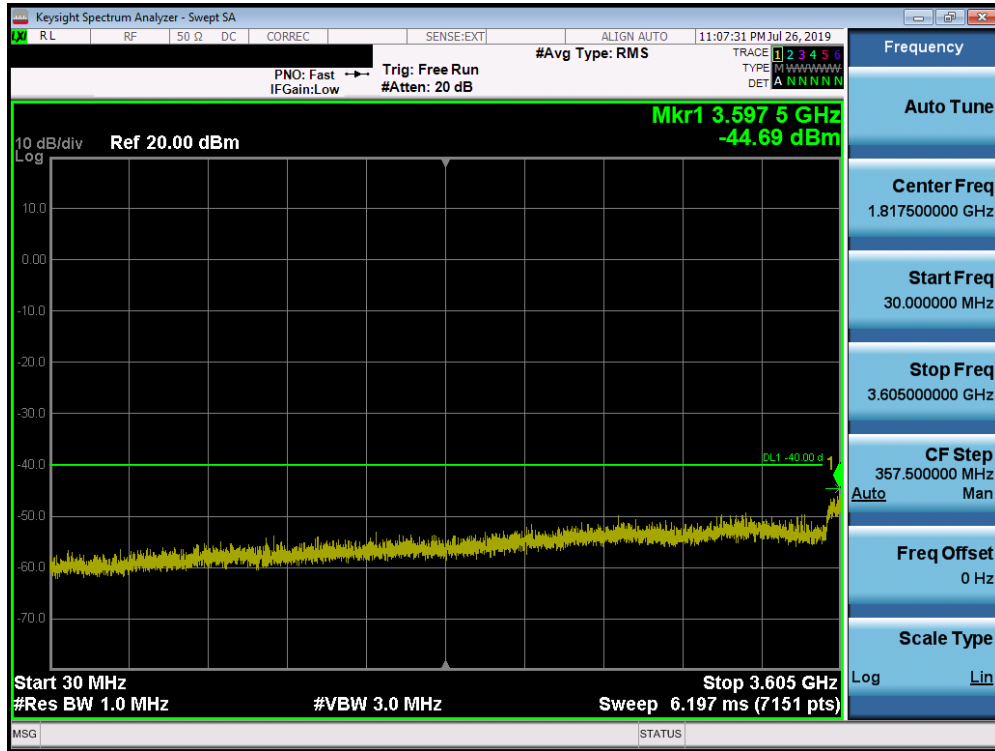




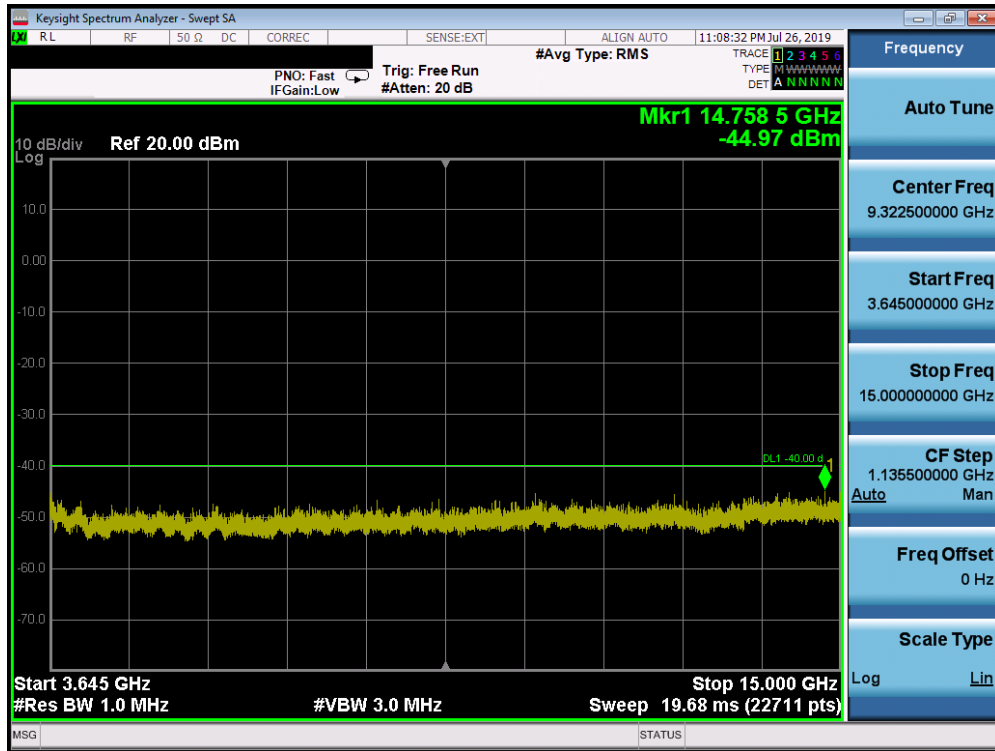
**Plot 7-120. Conducted Spurious Plot (20.0MHz 16QAM - Low Channel-MIMO)**

<b>FCC ID:</b> A3LMT6402-48A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1907220128-01.	<b>Test Dates:</b> 7/1/2019-7/29/2019	<b>EUT Type:</b> Massive MIMO CBSD		Page 118 of 172

# 1CC Mid Channel MIMO

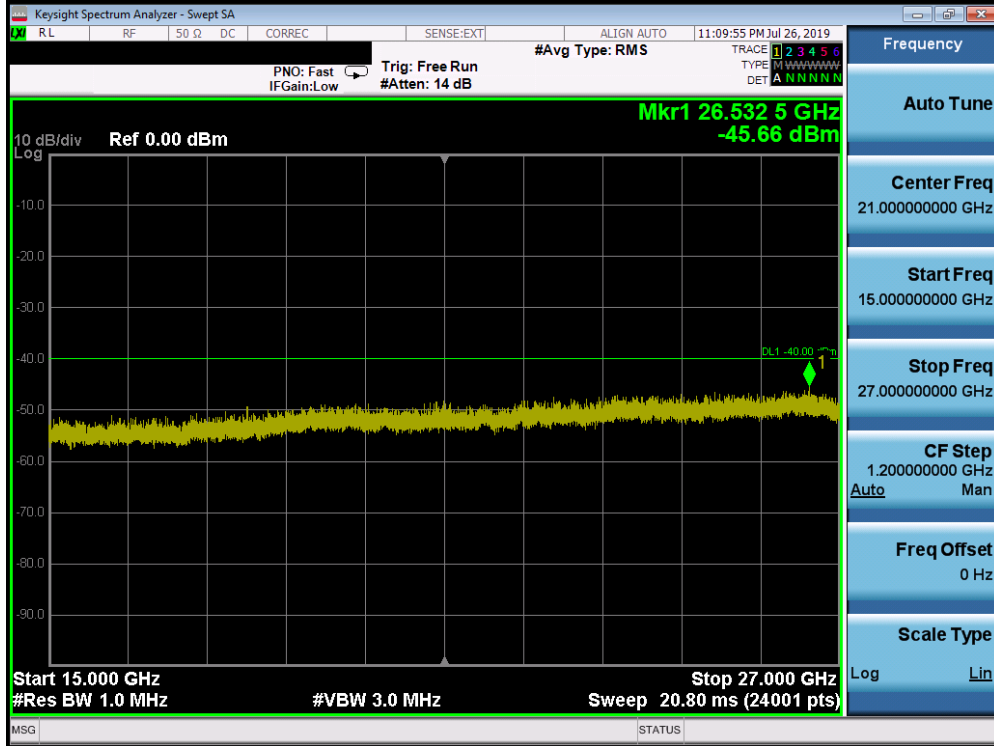


Plot 7-121. Conducted Spurious Plot (20.0MHz 16QAM - Mid Channel-MIMO)

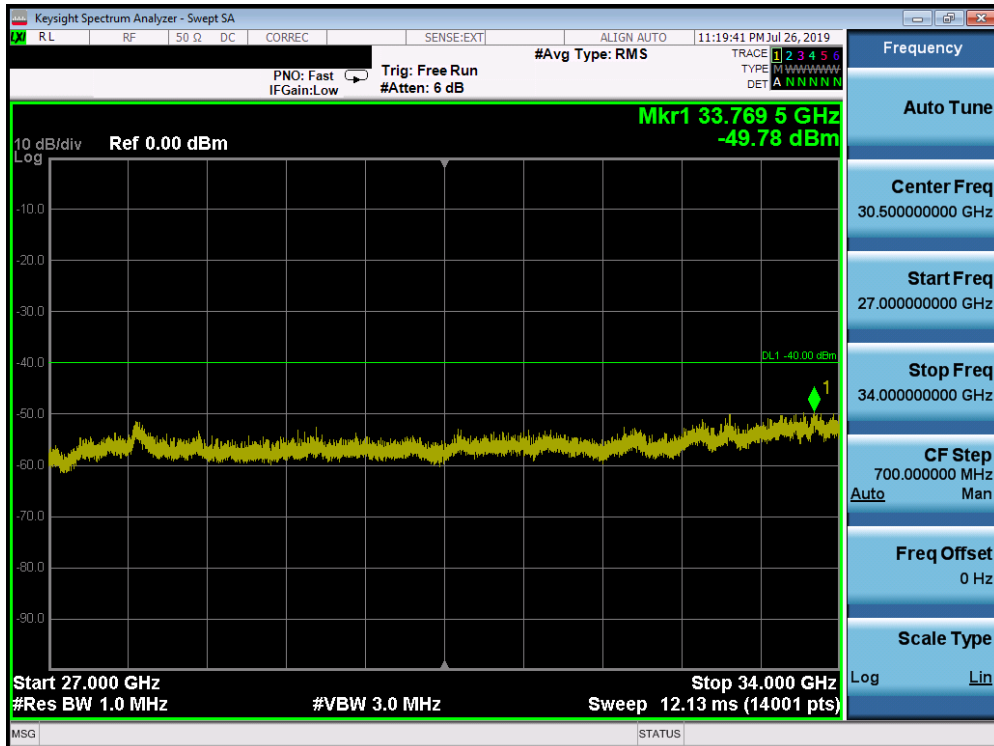


Plot 7-122. Conducted Spurious Plot (20.0MHz 16QAM - Mid Channel-MIMO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 119 of 172

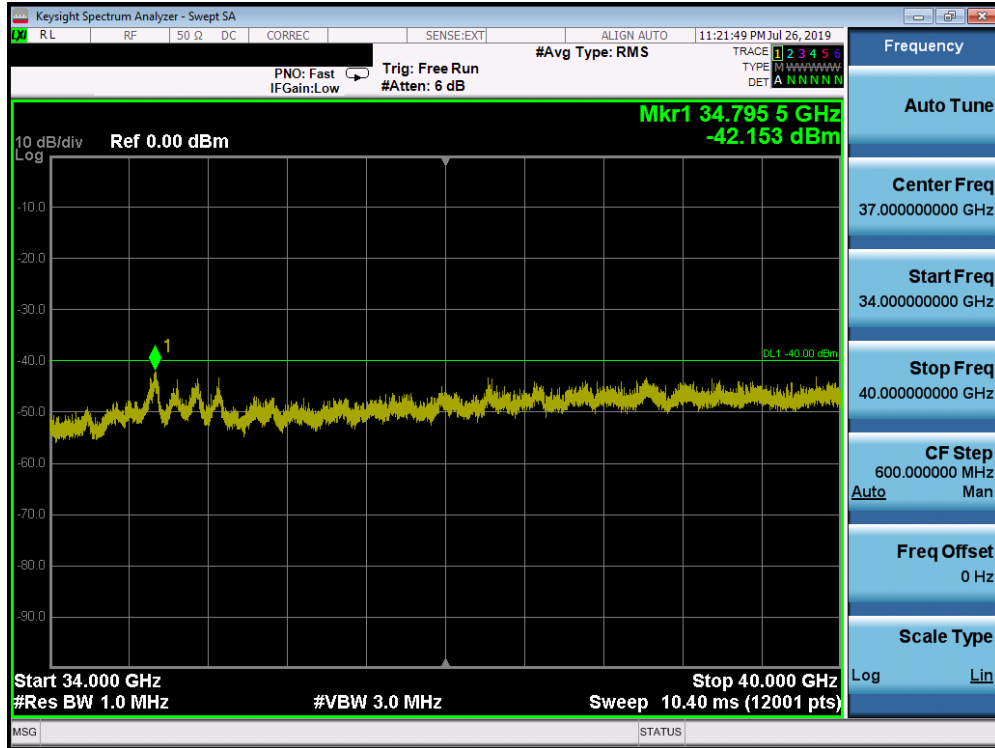


**Plot 7-123. Conducted Spurious Plot (20.0MHz 16QAM - Mid Channel-MIMO)**



**Plot 7-124. Conducted Spurious Plot (20.0MHz 16QAM - Mid Channel-MIMO)**

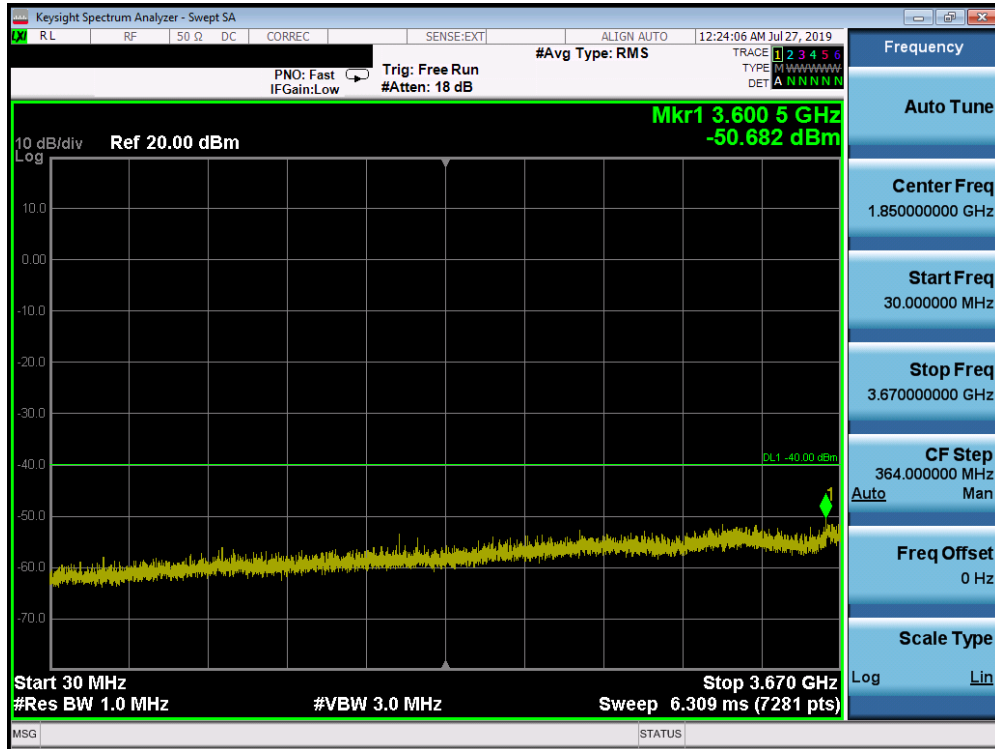
FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 120 of 172



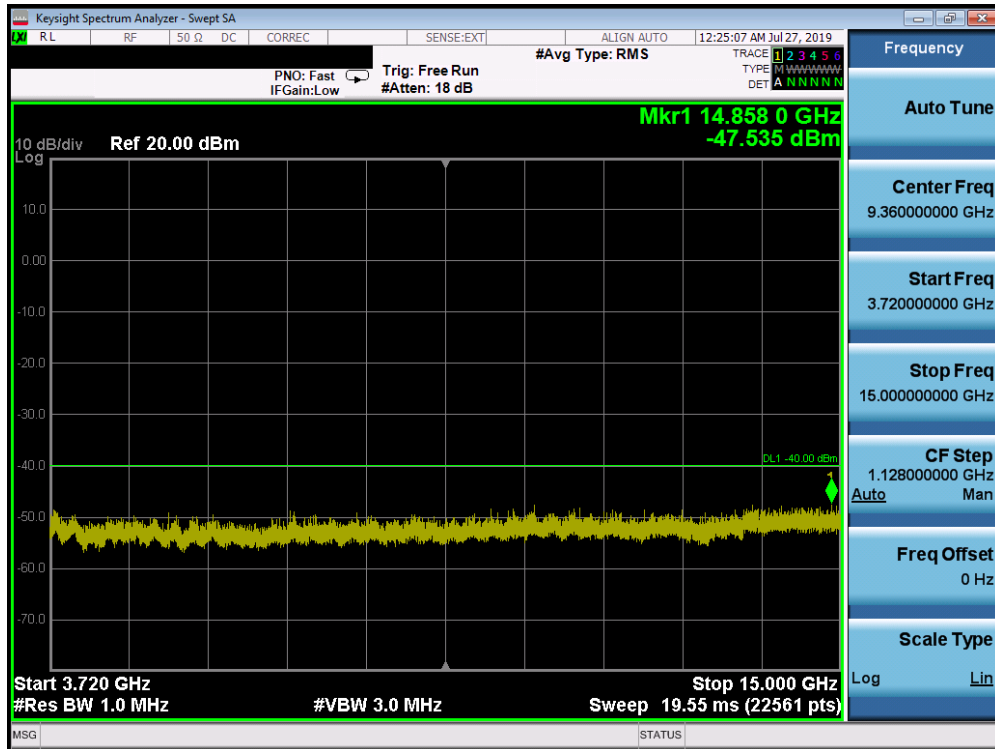
**Plot 7-125. Conducted Spurious Plot (20.0MHz 16QAM - Mid Channel-MIMO)**

<b>FCC ID:</b> A3LMT6402-48A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1907220128-01.	<b>Test Dates:</b> 7/1/2019-7/29/2019	<b>EUT Type:</b> Massive MIMO CBSD		Page 121 of 172

# 1CC High Channel MIMO

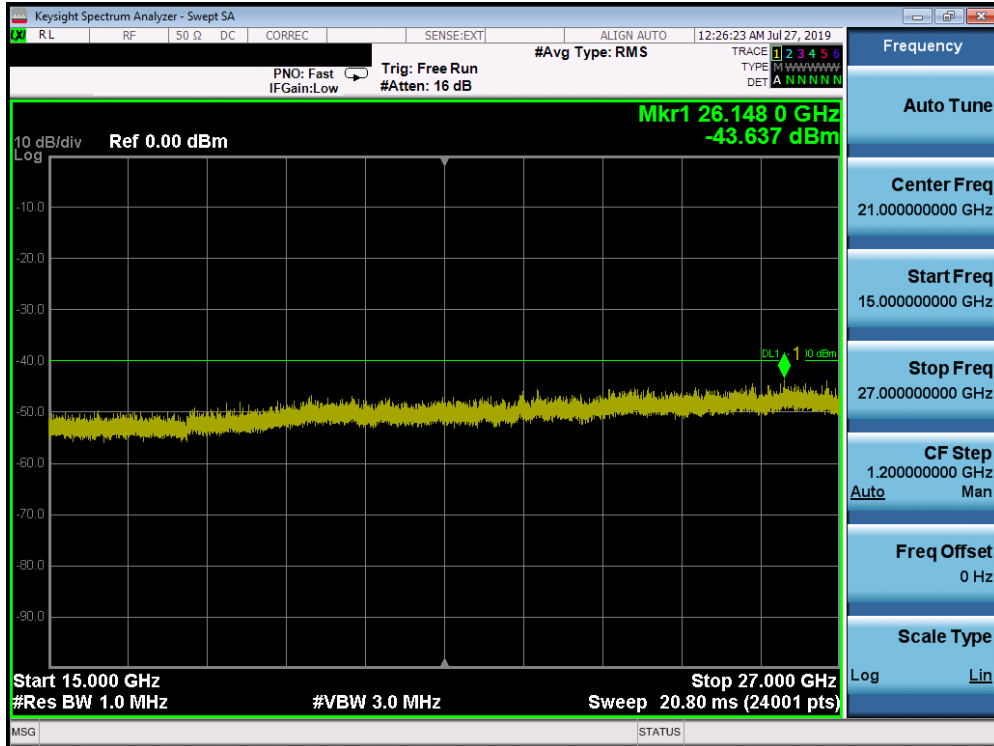


Plot 7-126. Conducted Spurious Plot (20.0MHz 16QAM - High Channel-MIMO)

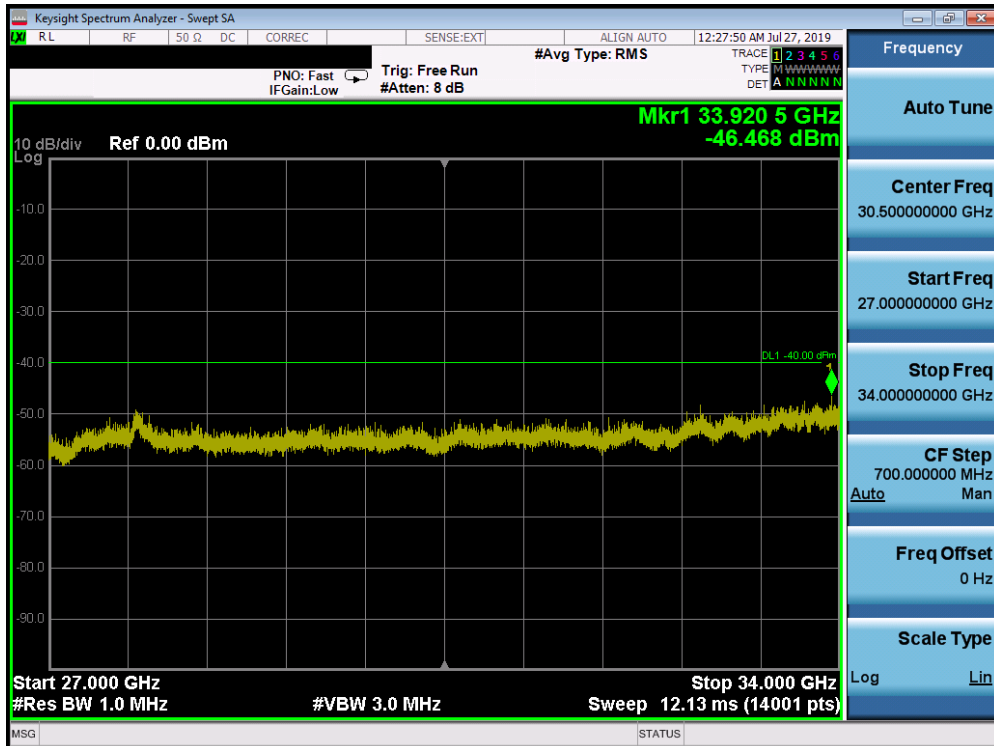


Plot 7-127. Conducted Spurious Plot (20.0MHz 16QAM - High Channel-MIMO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 122 of 172

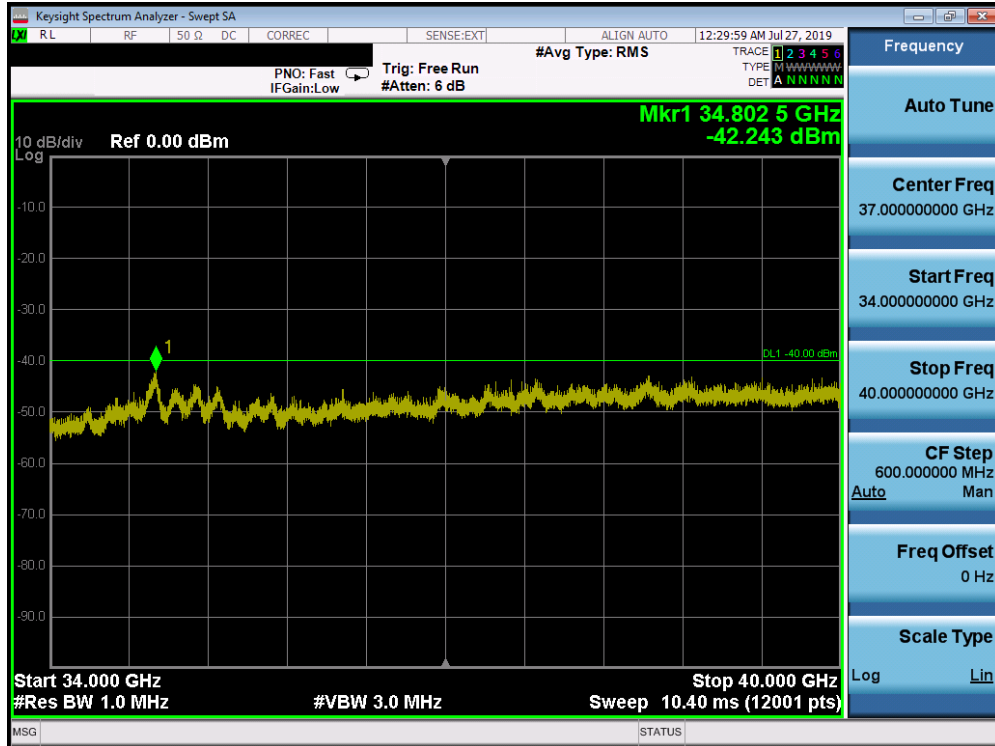


Plot 7-128. Conducted Spurious Plot (20.0MHz 16QAM - High Channel-MIMO)





Plot 7-129. Conducted Spurious Plot (20.0MHz 16QAM - High Channel-MIMO)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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**Plot 7-130. Conducted Spurious Plot (20.0MHz 16QAM - High Channel-MIMO)**

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<b>Test Report S/N:</b> 1M1907220128-01.	<b>Test Dates:</b> 7/1/2019-7/29/2019	<b>EUT Type:</b> Massive MIMO CBSD		Page 124 of 172

## 7.7 Case Radiated Spurious and Harmonic Emissions

§2.1053 §96.41(e)

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting. All antenna ports were terminated in 50Ω. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using dual polarized vivaldi antennas.

### Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

KDB 662911 D01 v02r01 – Section E)3) Out-of-Band and Spurious Emission Measurements

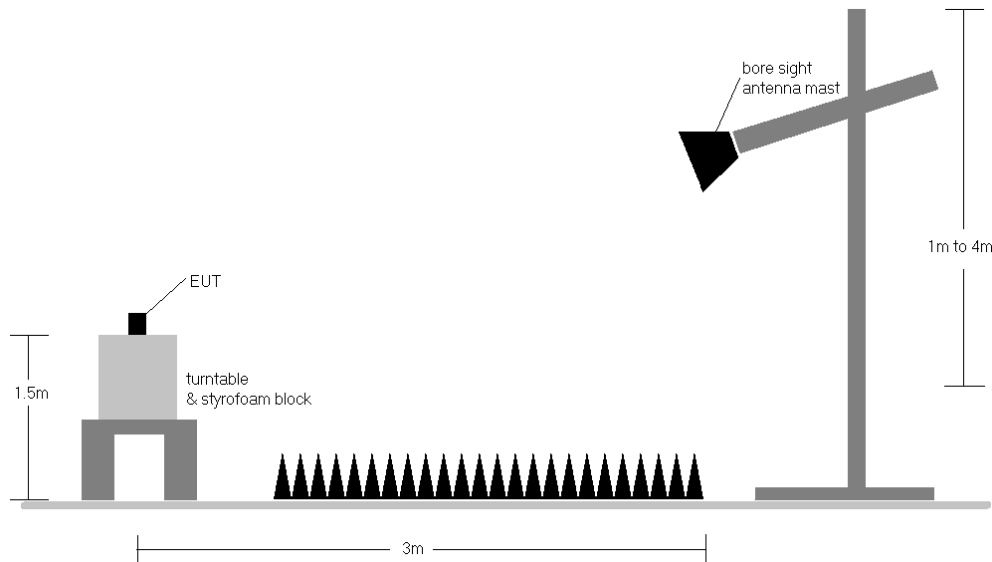
- b) Absolute Emission Limits
- (iii) Measure and add 10 log(NANT) Db

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 \* the fundamental frequency (separated into at least two plots per channel)
2. Trace mode = Average
3. Detector = RMS
4. Each emission was triggered on the pulse
5. Sweep time = auto couple
6. The trace was allowed to stabilize
7. Please see test notes below for RBW and VBW settings

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-6. Radiated Test Setup >1GHz**

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**Test Notes**

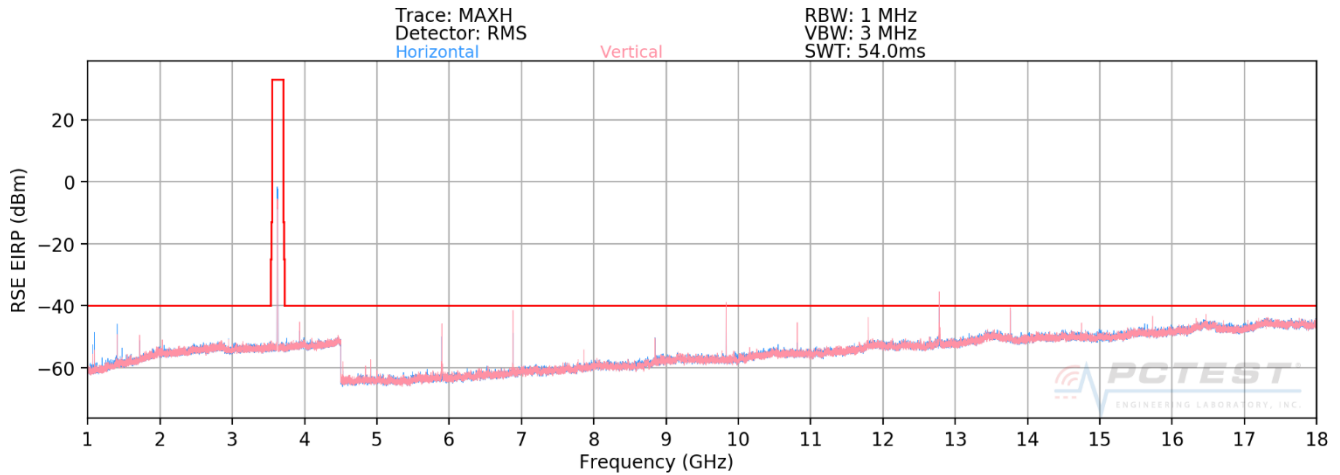
1. The EUT was tested in both horizontal and vertical antenna polarizations and in all possible test configurations and positioning. Multiple carriers were investigated with 1CC 20MHz bandwidth being found to be the worst case transmission mode. The worst case emissions are reported with the EUT positioning, modulations, channel bandwidth configurations shown in the tables below.
2. 16 user beam mode is the worst case mode and all radiated spurious emissions are measured in this mode.
3. This unit was tested while powered by a DC power source.
4. The modulation 16QAM for single carrier is the worst case.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter.

The worst-case emissions are reported.

6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

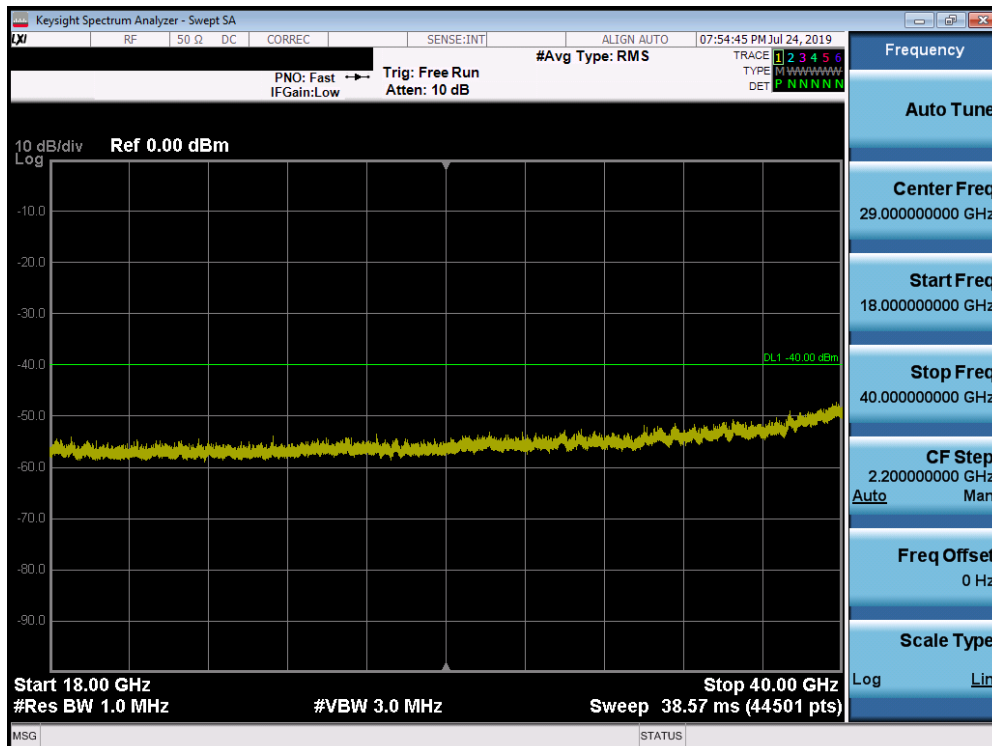
<b>FCC ID:</b> A3LMT6402-48A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1907220128-01.	<b>Test Dates:</b> 7/1/2019-7/29/2019	<b>EUT Type:</b> Massive MIMO CBSD	Page 126 of 172	

## Radiated Spurious Emissions - 1CC 20MHz Bandwidth



**Plot 7-131. Radiated Spurious Plot 1-18GHz (1CC-20.0MHz 16QAM- Mid Channel)**

Note: Pre-scan measurements were taken with trace on maxhold. Pre-scan plots are used for emissions detection and identification. All final spurious emission measurements were taken by maximizing each emission separately using trace average with RMS detector, and triggering on the emission. Final emission levels are recorded in the data tables to follow.



**Plot 7-132. Radiated Spurious Plot 18-40GHz (1CC-20.0MHz 16QAM - Mid Channel)**

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 3560.00 MHz  
 MODULATION SIGNAL: 16QAM  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4840.00	V	269	309	-80.57	11.33	-69.24	-29.2
7120.00	H	-	-	-76.35	10.17	-66.17	-26.2
9830.00	H	176	123	-54.68	11.64	-43.04	-3.0
10680.00	V	-	-	-73.28	12.06	-61.22	-21.2
12780.00	V	103	194	-62.56	13.45	-49.11	-9.1
13762.60	V	109	202	-64.19	12.37	-51.82	-11.8
14240.00	H	-	-	-68.74	12.76	-55.98	-16.0
17800.00	H	-	-	-65.16	14.15	-51.01	-11.0

**Plot 7-133. Radiated Spurious Emissions (1CC-20.0MHz 16QAM - Low Channel)**

OPERATING FREQUENCY: 3625.00 MHz  
 MODULATION SIGNAL: 16QAM  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1406.20	H	182	4	-50.62	2.29	-48.33	-8.3
7250.00	H	-	-	-76.22	9.14	-67.08	-27.1
9830.50	V	101	224	-51.17	9.54	-41.62	-1.6
10813.46	H	140	140	-65.85	9.38	-56.47	-16.5
10875.00	H	-	-	-70.49	9.31	-61.18	-21.2
12779.40	V	115	206	-50.06	8.90	-41.16	-1.2
13762.40	V	138	208	-49.71	8.73	-40.98	-1.0
14500.00	H	-	-	-64.39	8.46	-55.94	-15.9

**Plot 7-134. Radiated Spurious Emissions (1CC-20.0MHz 16QAM - Mid Channel)**

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 3680.00 MHz  
 MODULATION SIGNAL: 16QAM  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7360.00	H	-	-	-75.42	10.00	-65.42	-25.4
9830.00	H	172	238	-54.37	11.64	-42.73	-2.7
11040.00	H	-	-	-72.75	12.61	-60.14	-20.1
12780.00	V	189	203	-54.77	13.45	-41.32	-1.3
13762.60	V	109	205	-55.02	12.37	-42.65	-2.7
14720.00	H	-	-	-67.92	14.08	-53.84	-13.8

**Plot 7-135. Radiated Spurious Emissions (1CC-20.0MHz 16QAM- High Channel)**

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 129 of 172

## 7.8 Band Edge Emissions at Antenna Terminal

§2.1051 §96.41(e)

### Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

***The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed -25 dBm/MHz.***

***The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.***

### Test Procedure Used

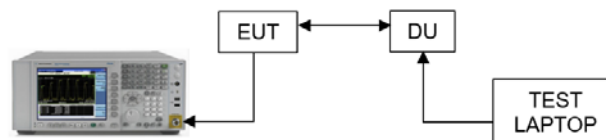
KDB 971168 D01 v03r01 – Section 6.0

### Test Settings



1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq$  1% of the emission bandwidth
4. VBW  $\geq$  3 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq$  2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.





**Figure 7-7. Test Instrument & Measurement Setup**

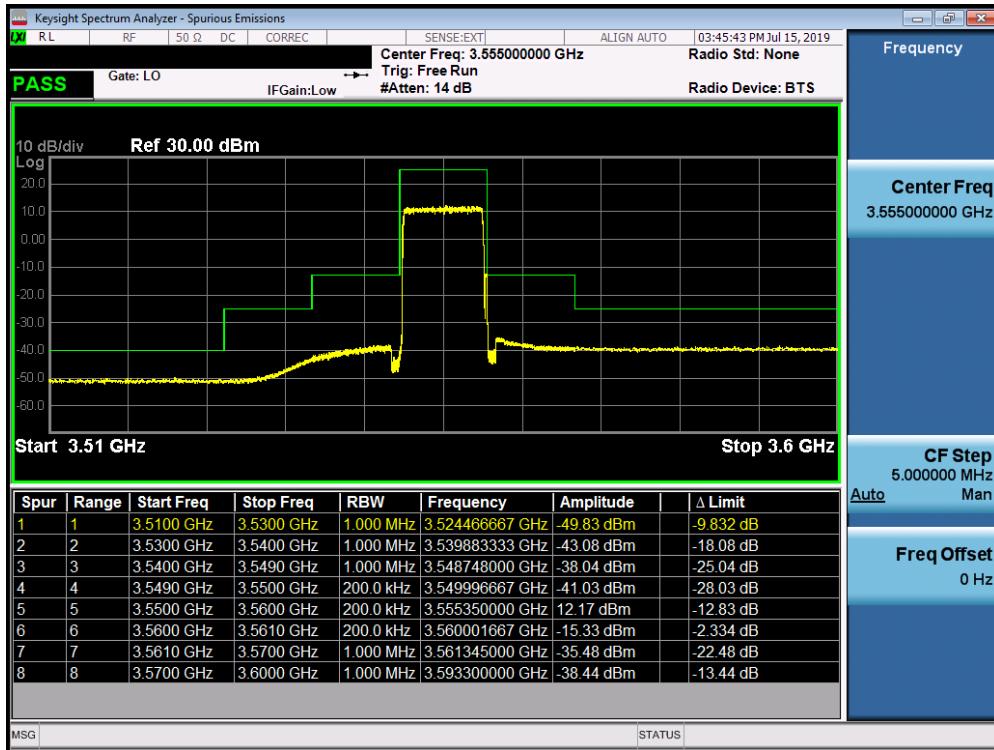
FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBS		Page 130 of 172

**Test Notes**

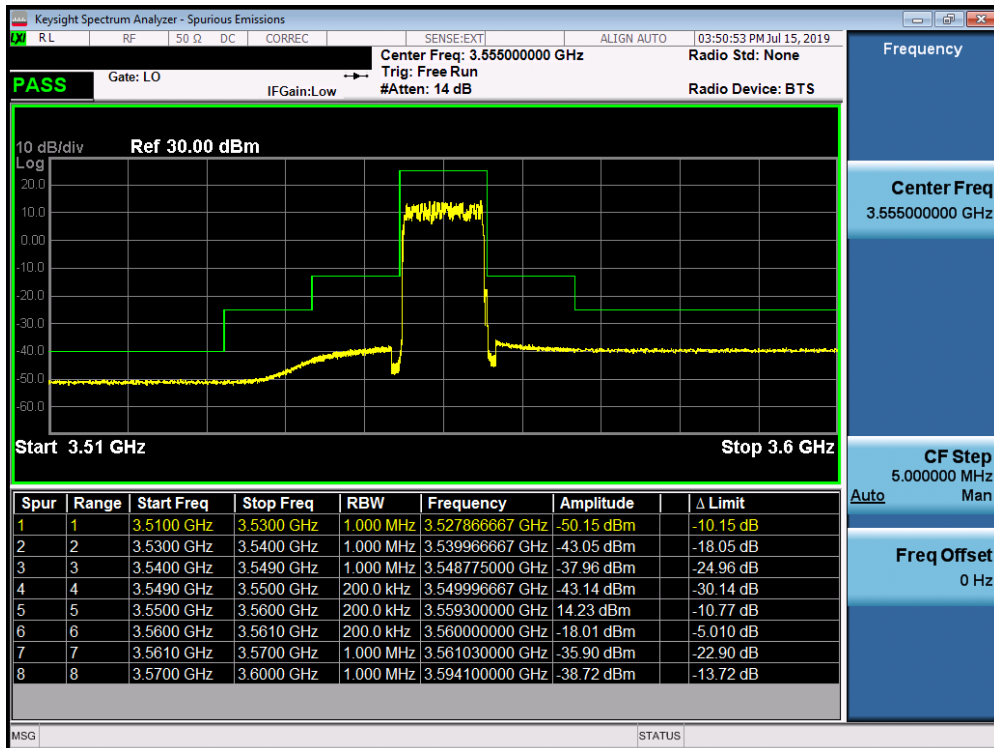
1. The signal was gated with an appropriate sweep time, gate delay and length to capture the on time of the transmission.
2. MIMO plots show band edge for 64 transmit ports combined. Refer to the following calculation:  
 $10 \cdot \log(64) = 18.06 \text{ dB}$   
 This offset has been added in the MIMO Plots.

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# Low Channel 10MHz Total Bandwidth Channel Edge

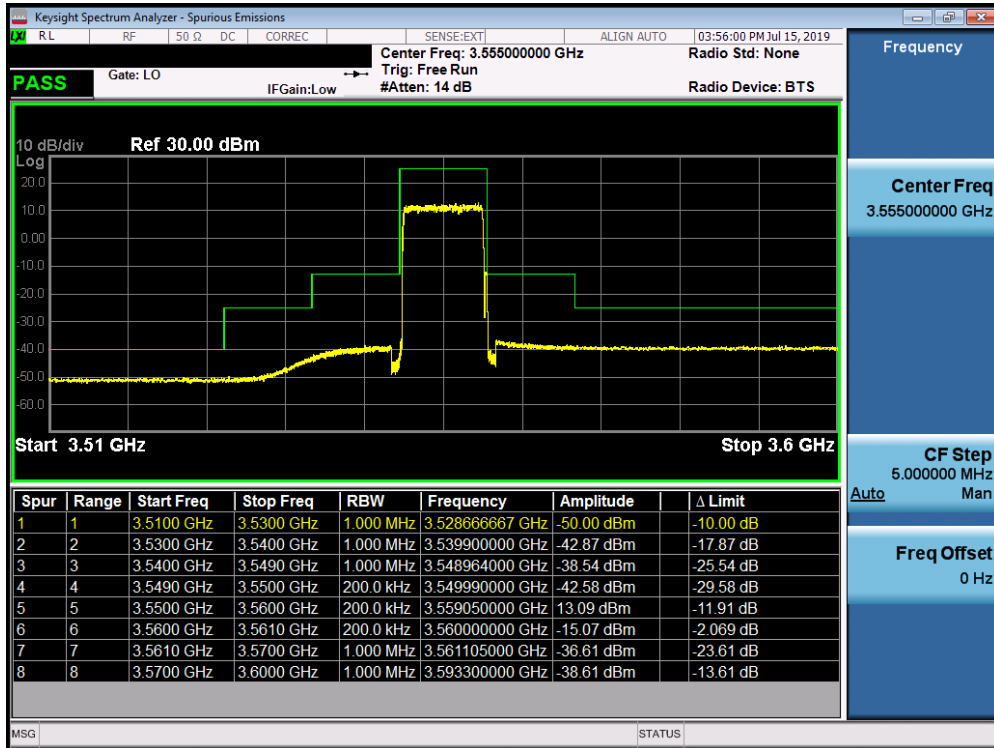


Plot 7-136. Low Channel Edge Plot (10.0MHz Total Bandwidth QPSK)

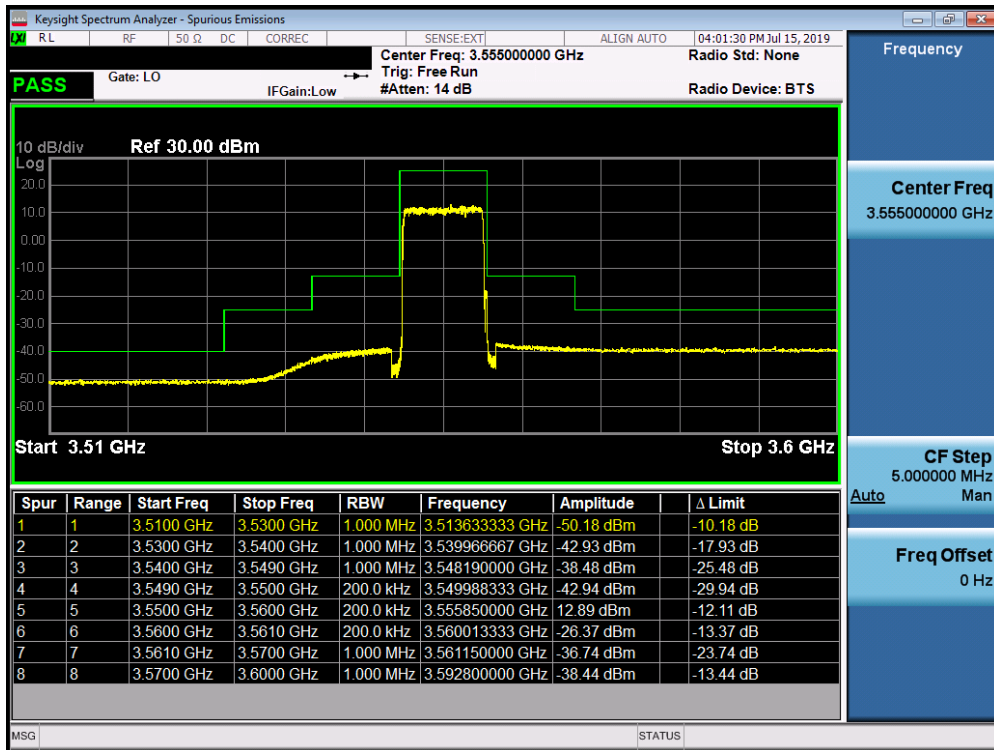


Plot 7-137. Low Channel Edge Plot (10.0MHz Total Bandwidth 16QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-138. Low Channel Edge Plot (10.0MHz Total Bandwidth 64QAM)

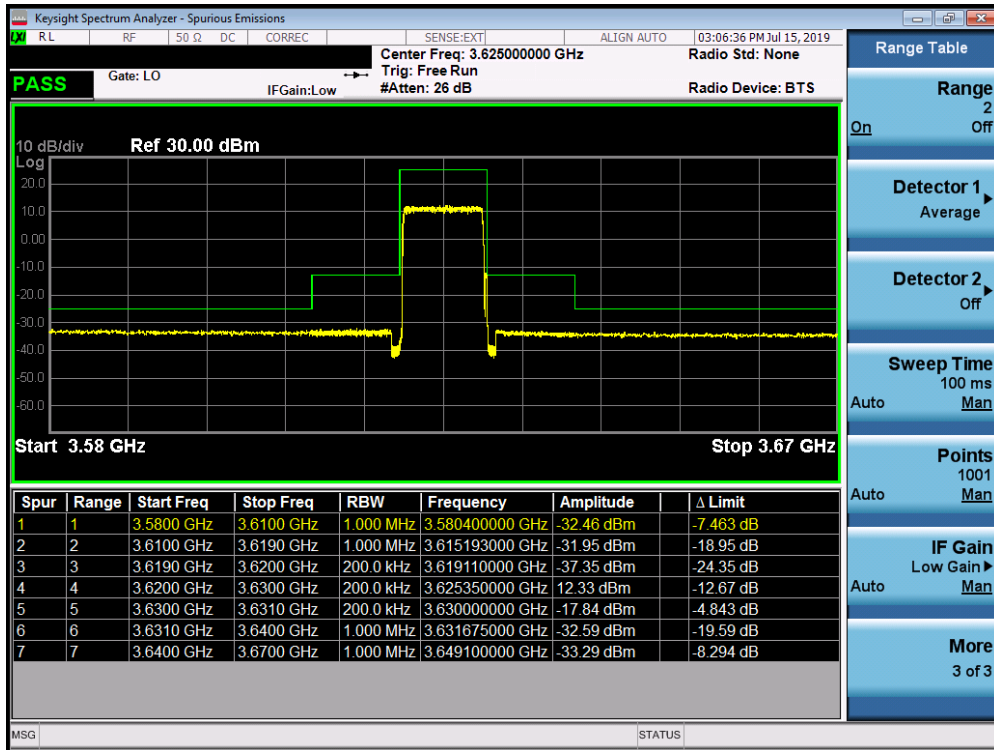


Plot 7-139. Low Channel Edge Plot (10.0MHz Total Bandwidth 256QAM)

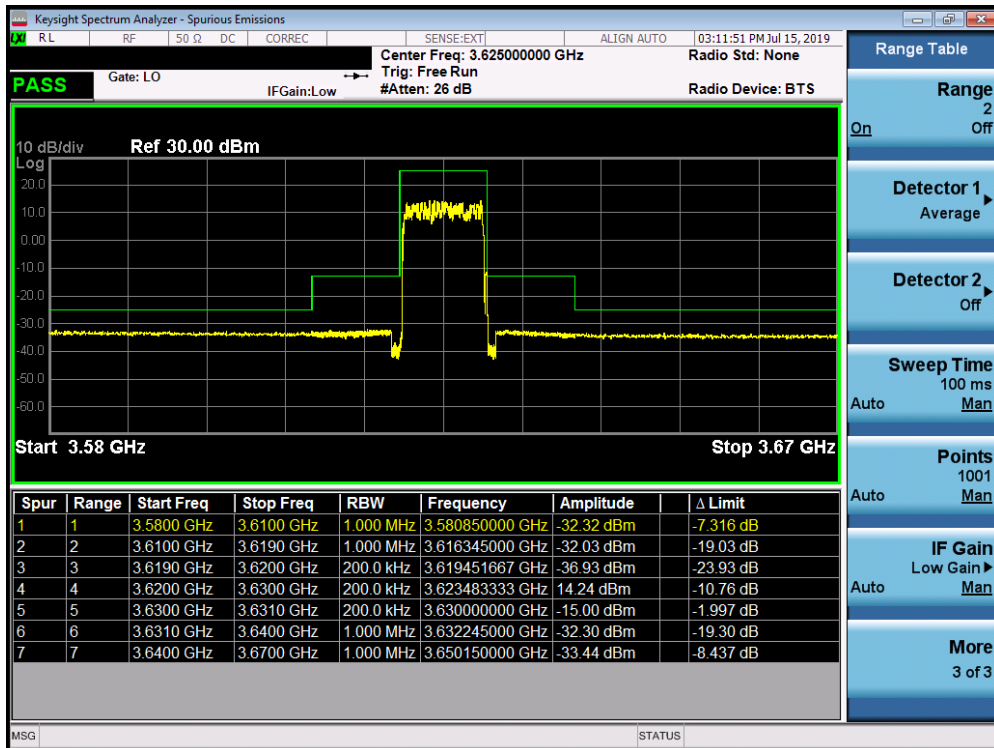
FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBS		Page 133 of 172



## Mid Channel 10MHz Total Bandwidth Channel Edge

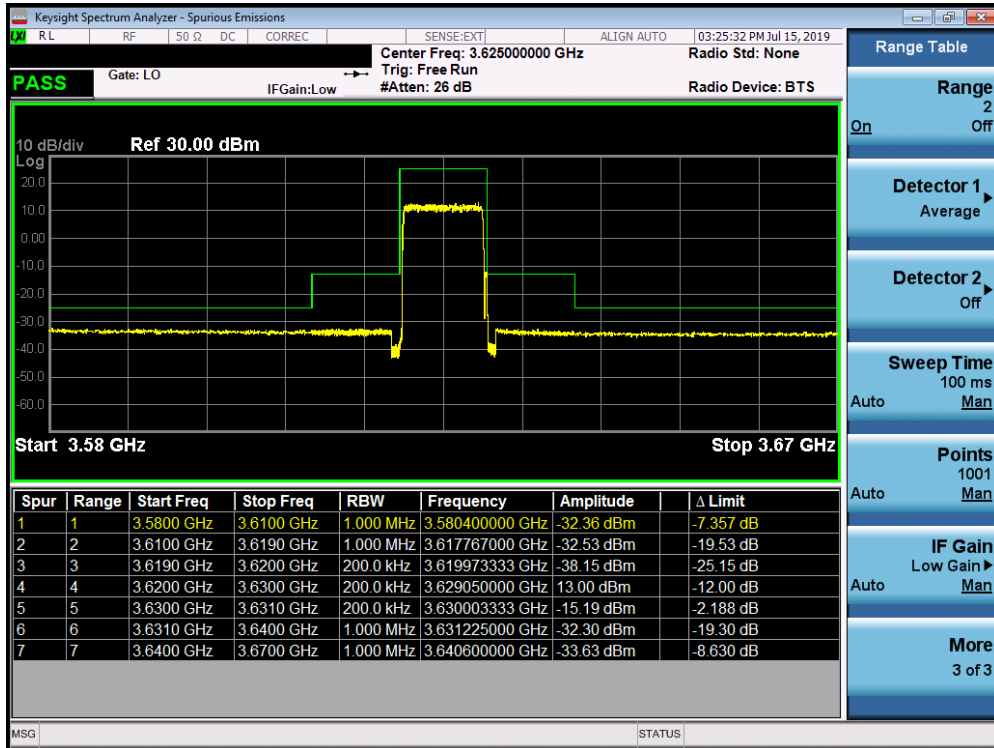


Plot 7-140. Mid Channel Edge Plot (10.0MHz Total Bandwidth QPSK)

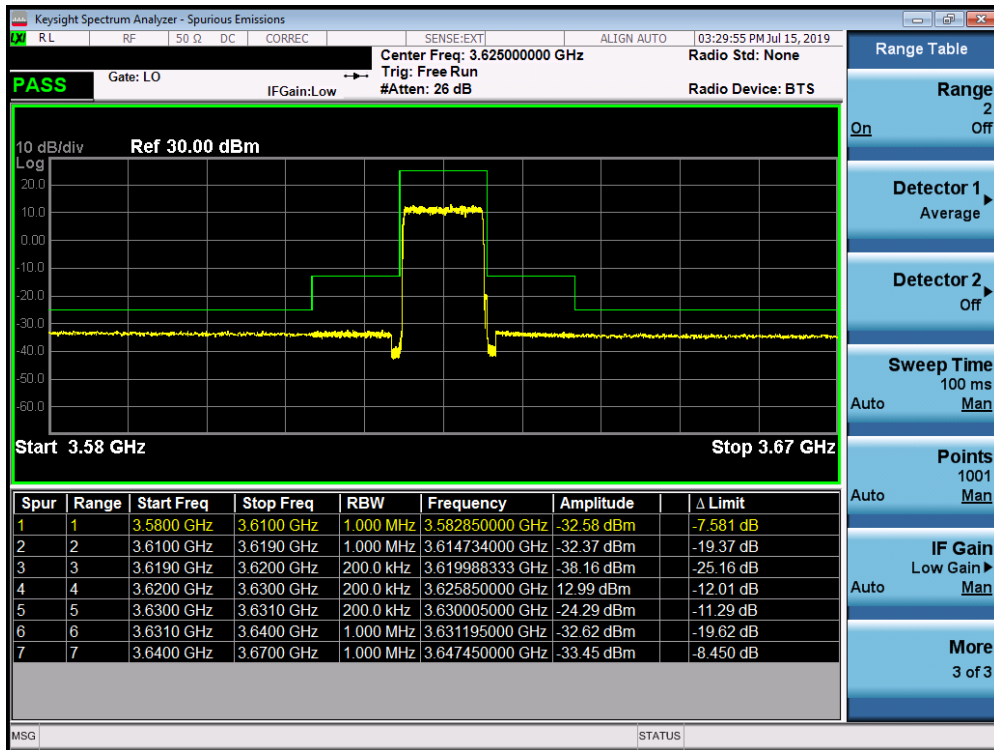


Plot 7-141. Mid Channel Edge Plot (10.0MHz Total Bandwidth 16QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 134 of 172



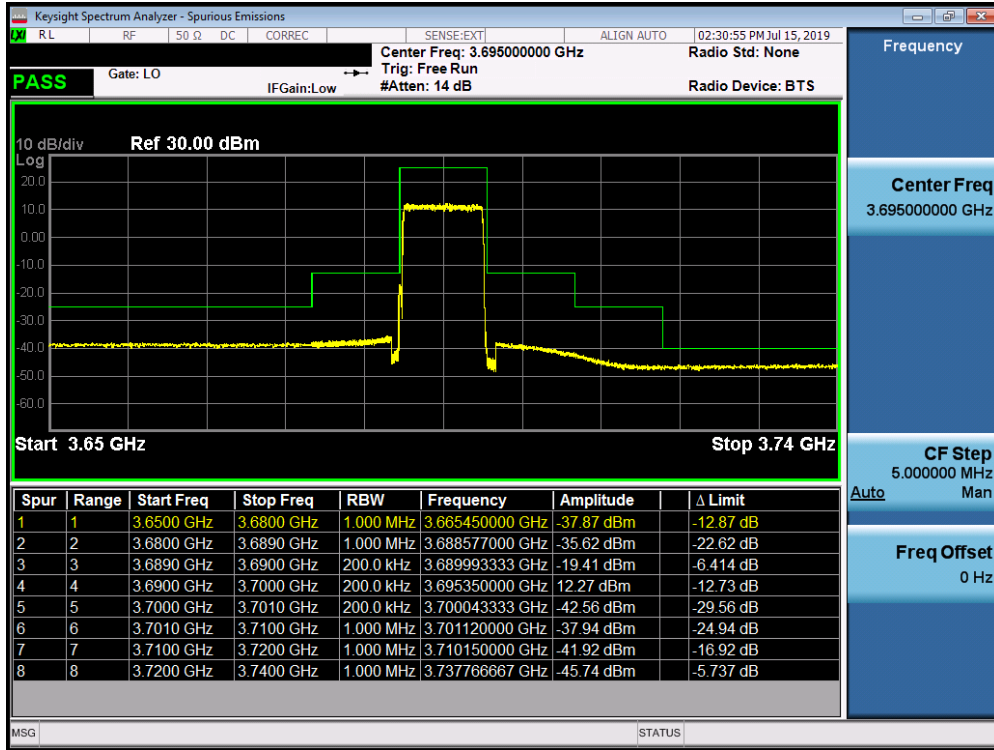
Plot 7-142. Mid Channel Edge Plot (10.0MHz Total Bandwidth 64QAM)



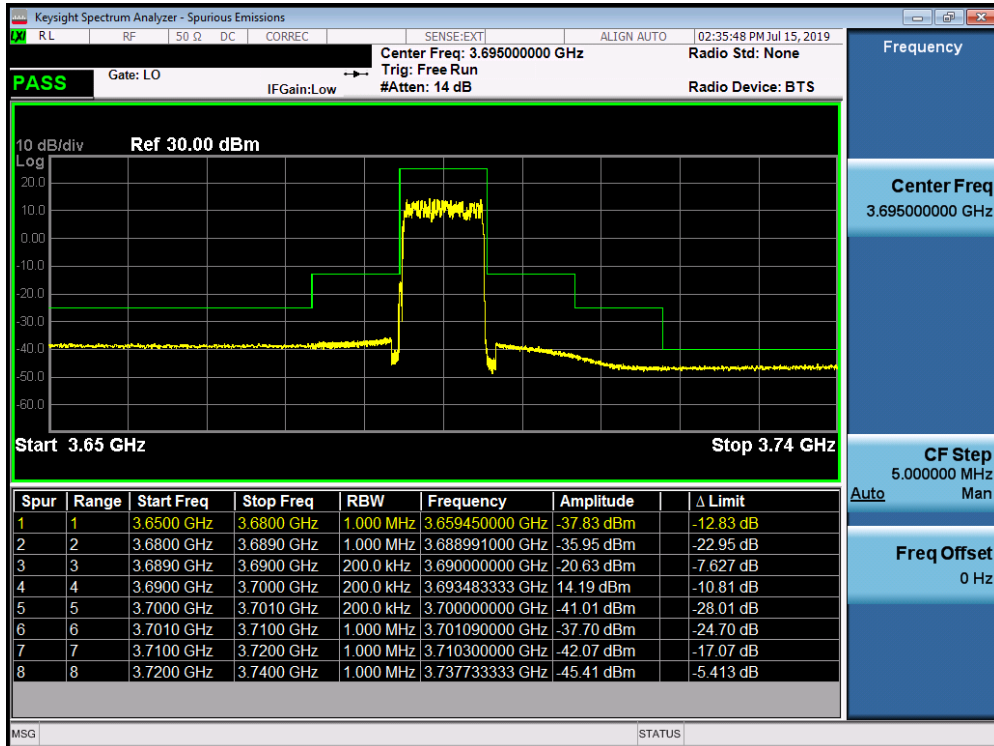
Plot 7-143. Mid Channel Edge Plot (10.0MHz Total Bandwidth 256QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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# High Channel 10MHz Total Bandwidth Channel Edge

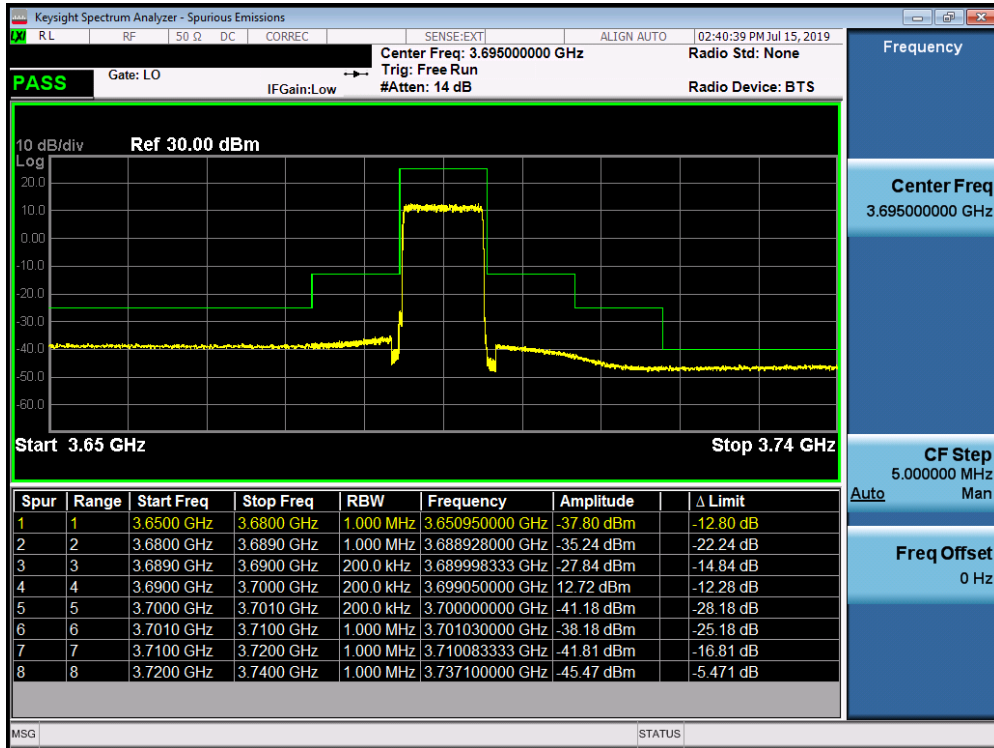


Plot 7-144. High Channel Edge Plot (10.0MHz Total Bandwidth QPSK)

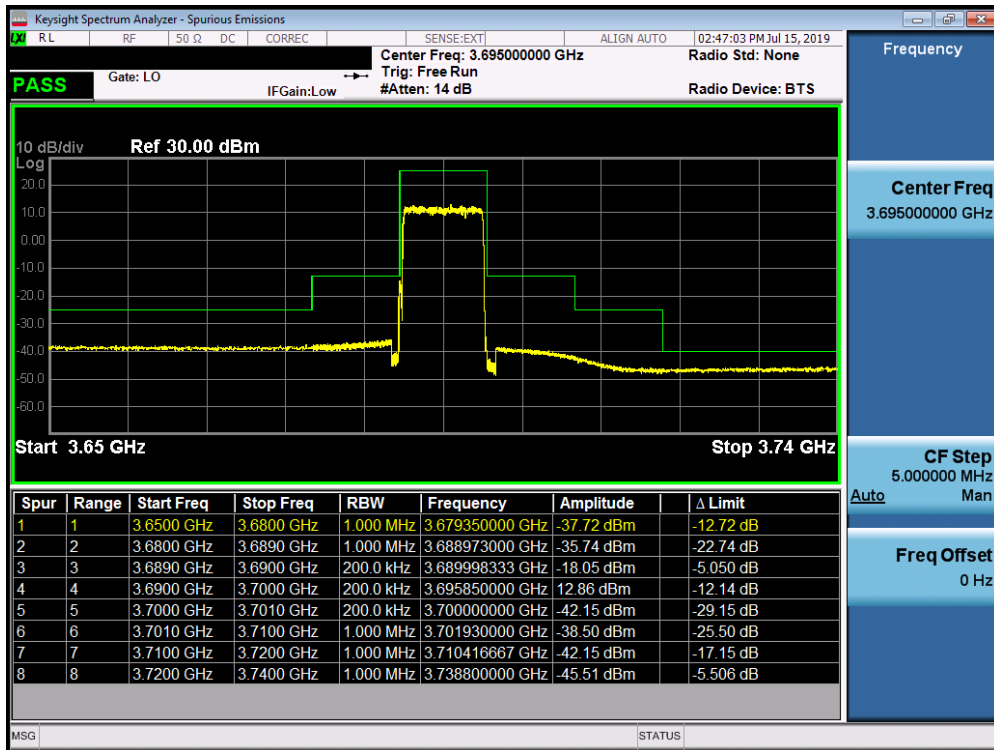


Plot 7-145. High Channel Edge Plot (10.0MHz Total Bandwidth 16QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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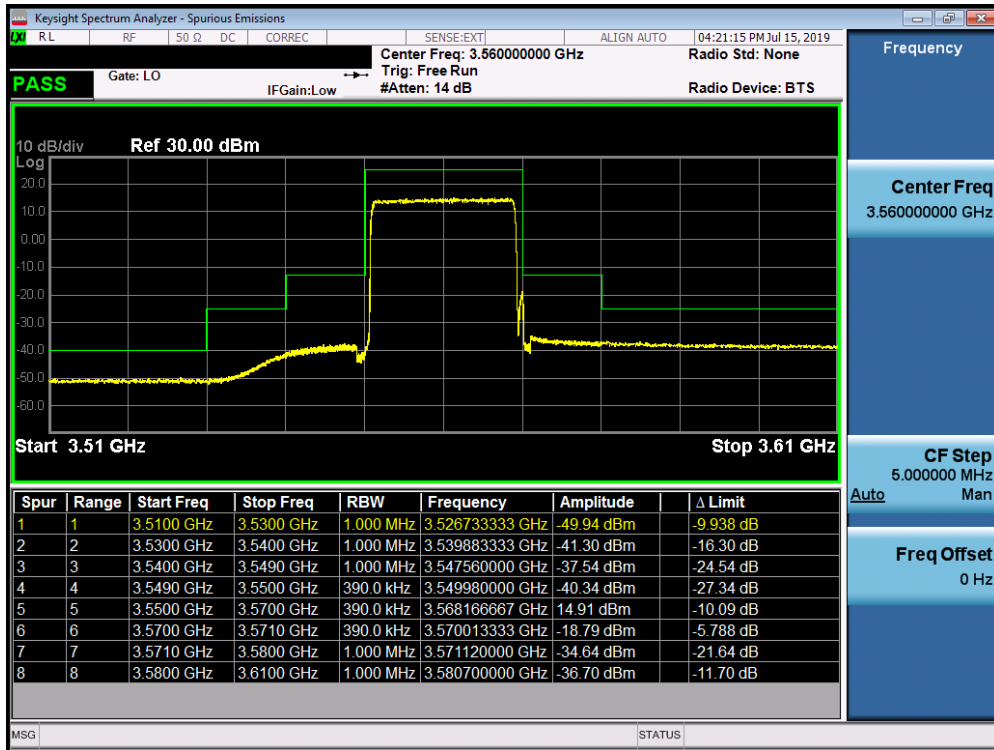
Plot 7-146. High Channel Edge Plot (10.0MHz Total Bandwidth 64QAM)



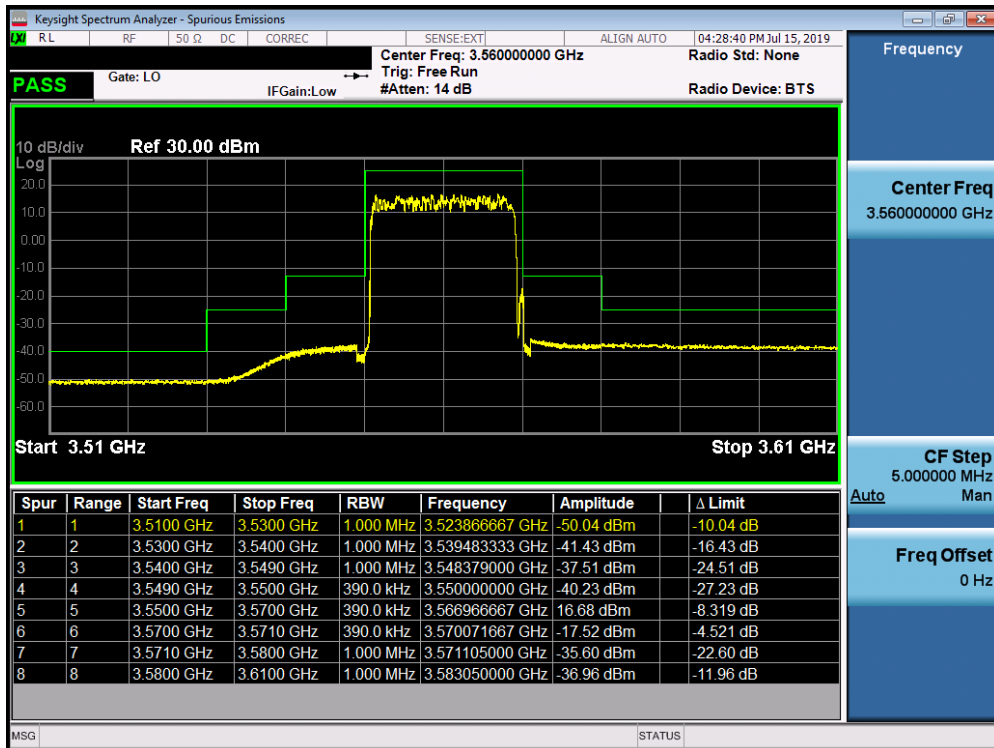
Plot 7-147. High Channel Edge Plot (10.0MHz Total Bandwidth 256QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Low Channel 20MHz Total Bandwidth Channel Edge

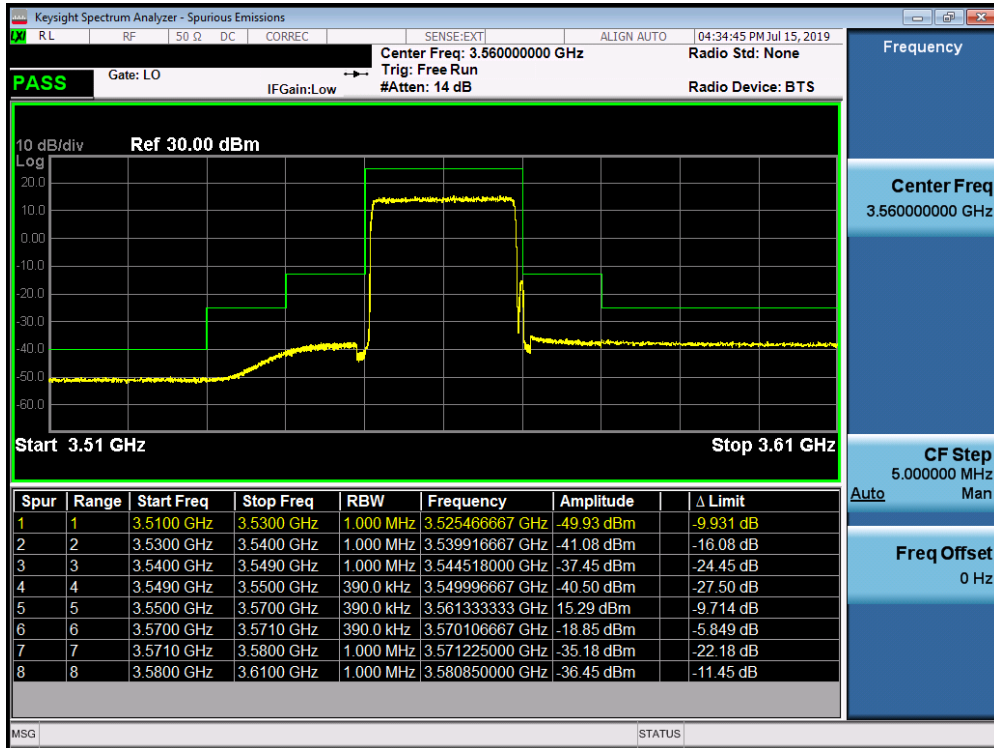


Plot 7-148. Low Channel Edge Plot (20MHz Total Bandwidth QPSK)

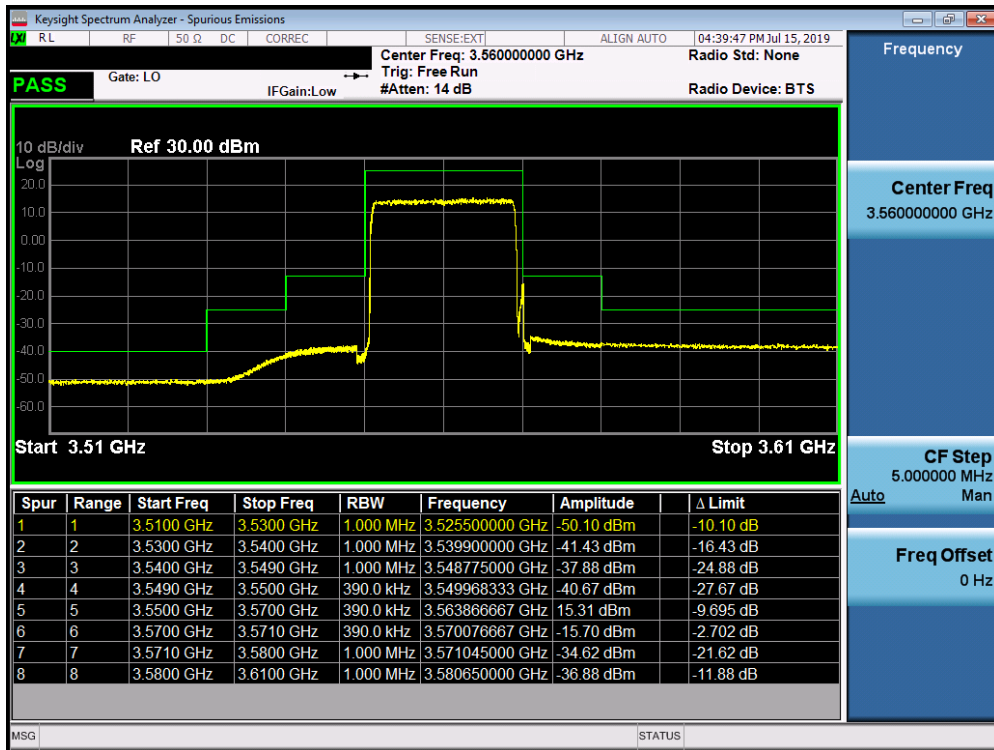


Plot 7-149. Low Channel Edge Plot (20MHz Total Bandwidth 16QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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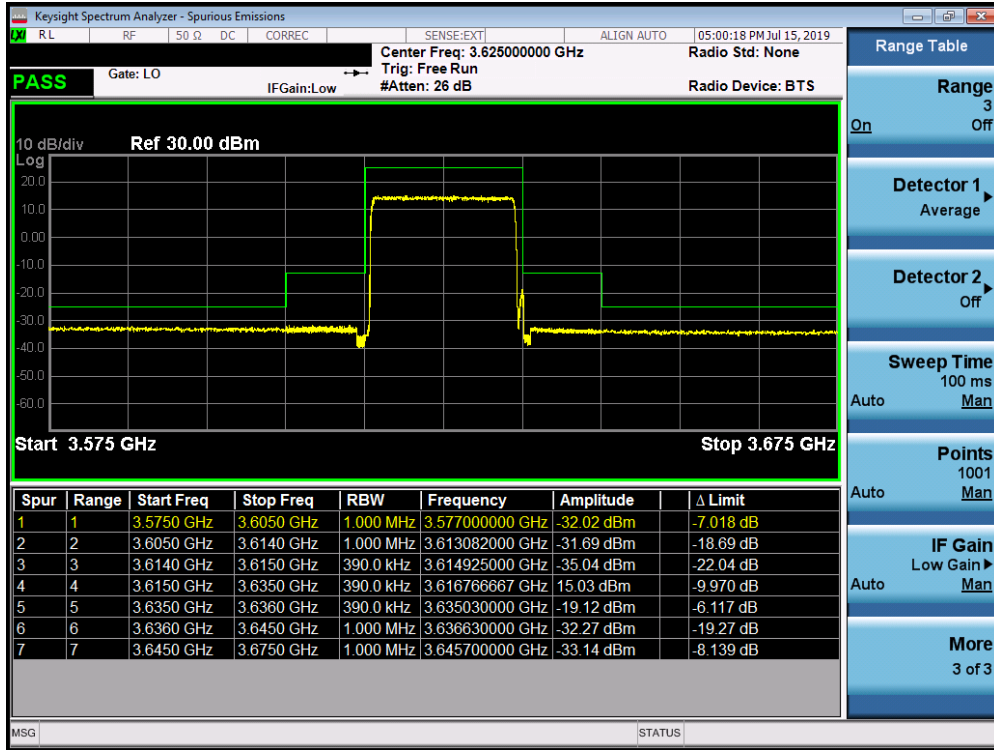
Plot 7-150. Low Channel Edge Plot (20MHz Total Bandwidth 64QAM)



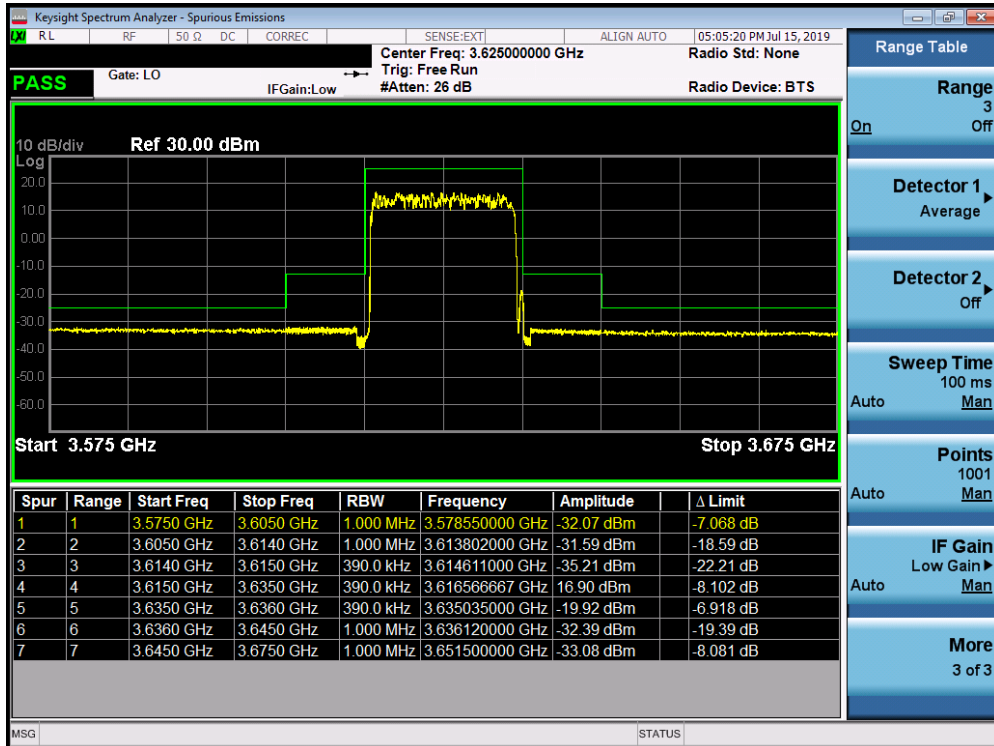
Plot 7-151. Low Channel Edge Plot (20MHz Total Bandwidth 256QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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# Mid Channel 20MHz Total Bandwidth Channel Edge

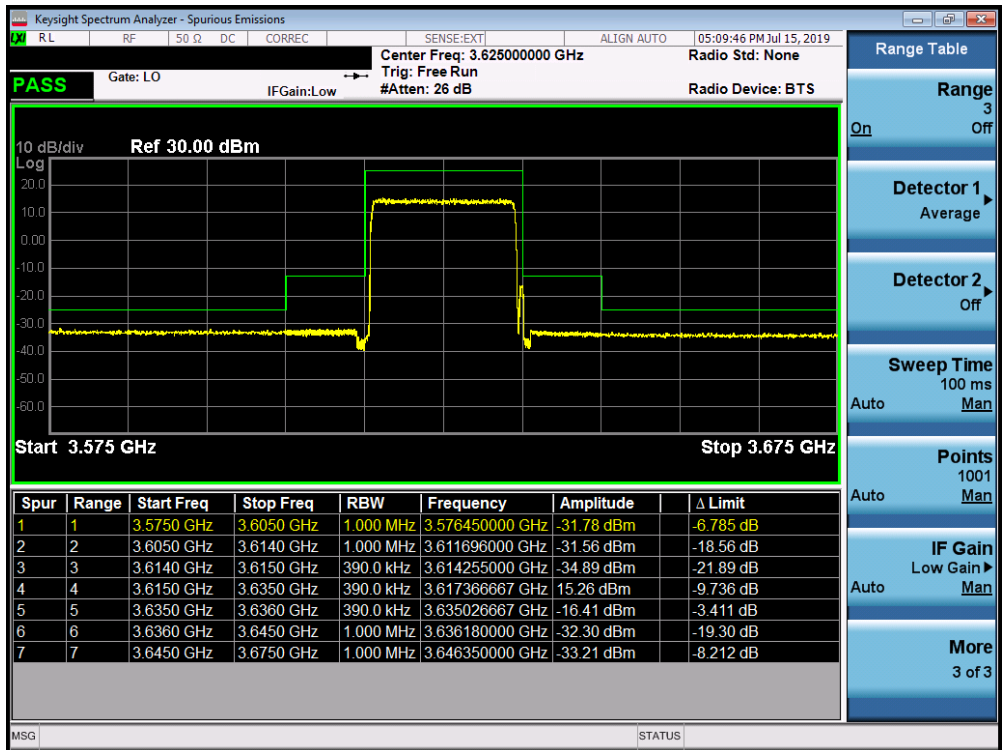


Plot 7-152. Mid Channel Edge Plot (20MHz Total Bandwidth QPSK)

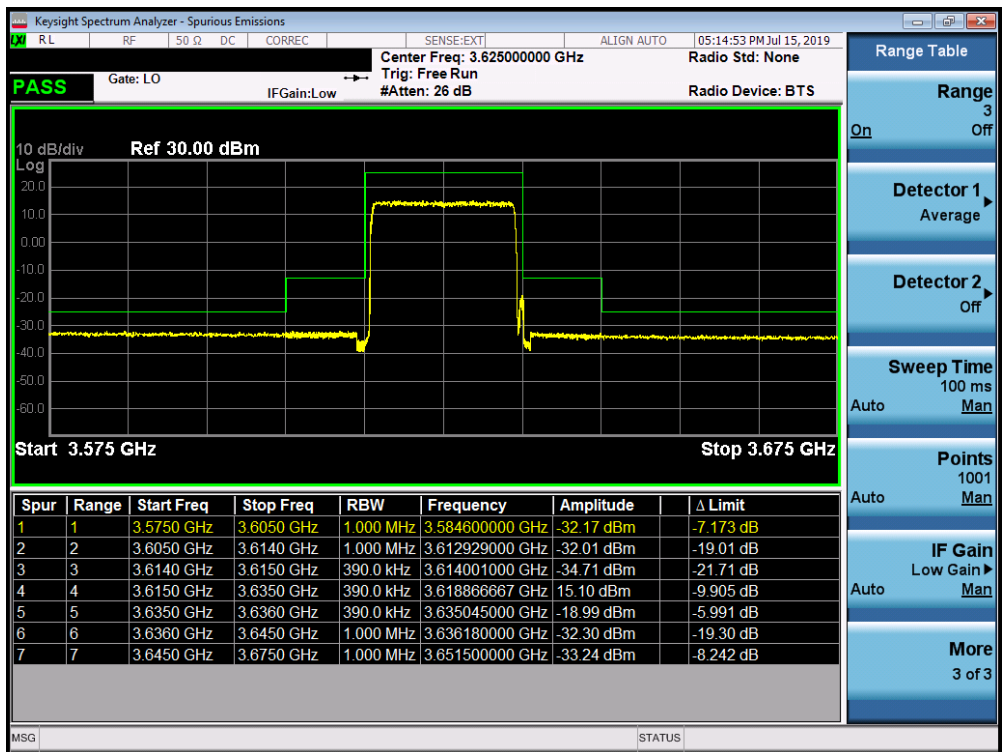


Plot 7-153. Mid Channel Edge Plot (20MHz Total Bandwidth 16QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-154. Mid Channel Edge Plot (20MHz Total Bandwidth 64QAM)

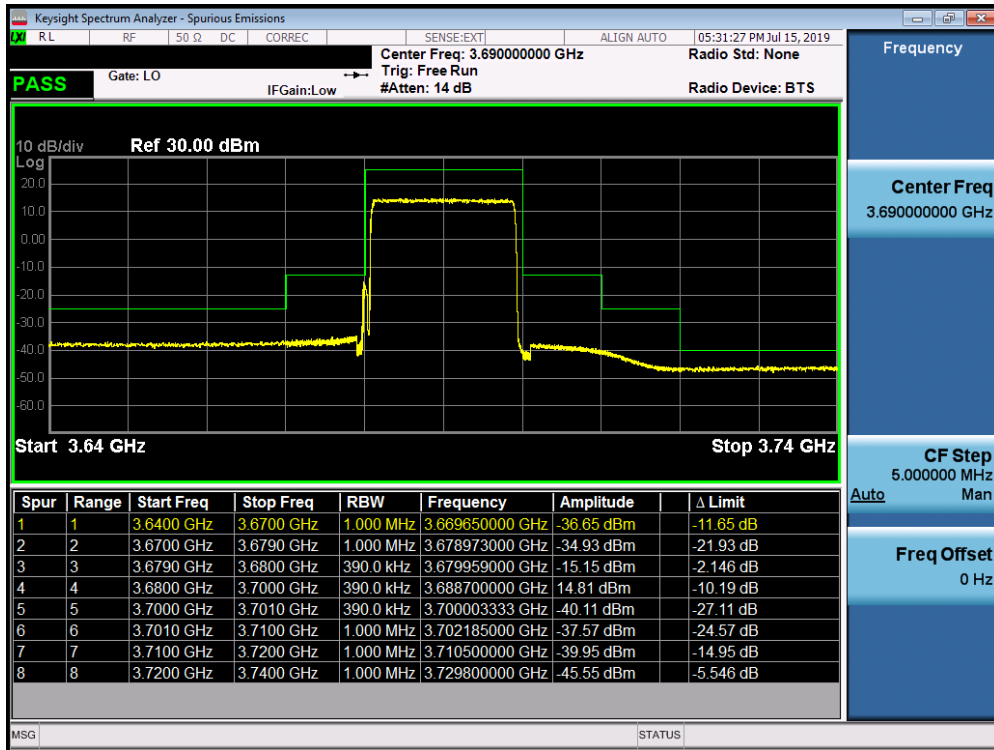


Plot 7-155. Mid Channel Edge Plot (20MHz Total Bandwidth 256QAM)

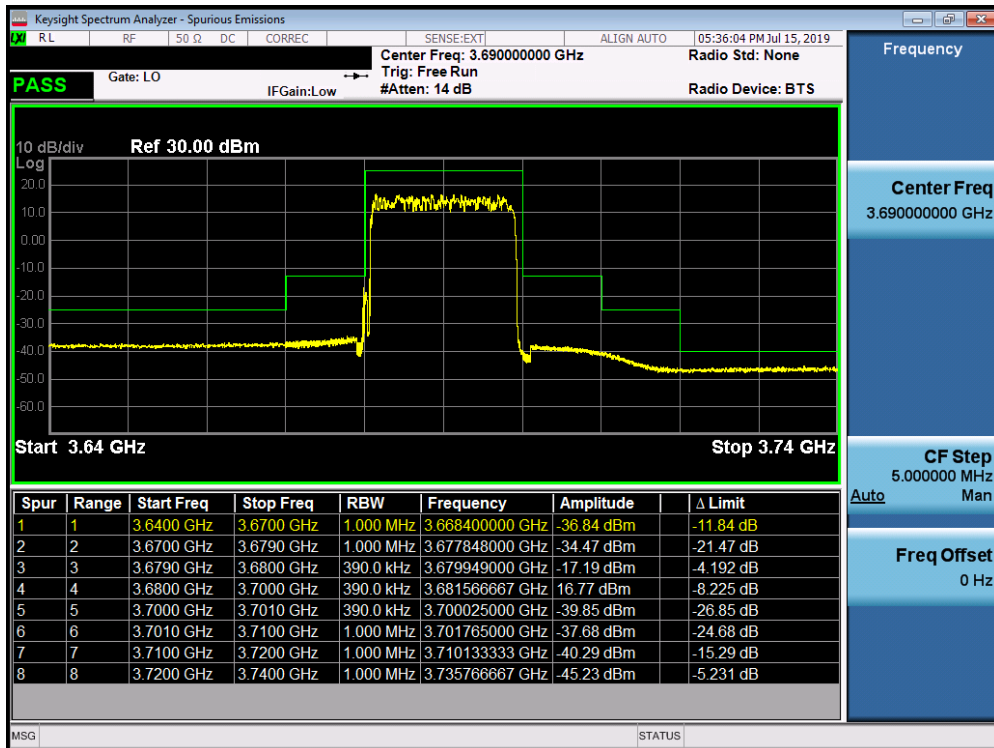
FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 141 of 172



# High Channel 20MHz Total Bandwidth Channel Edge

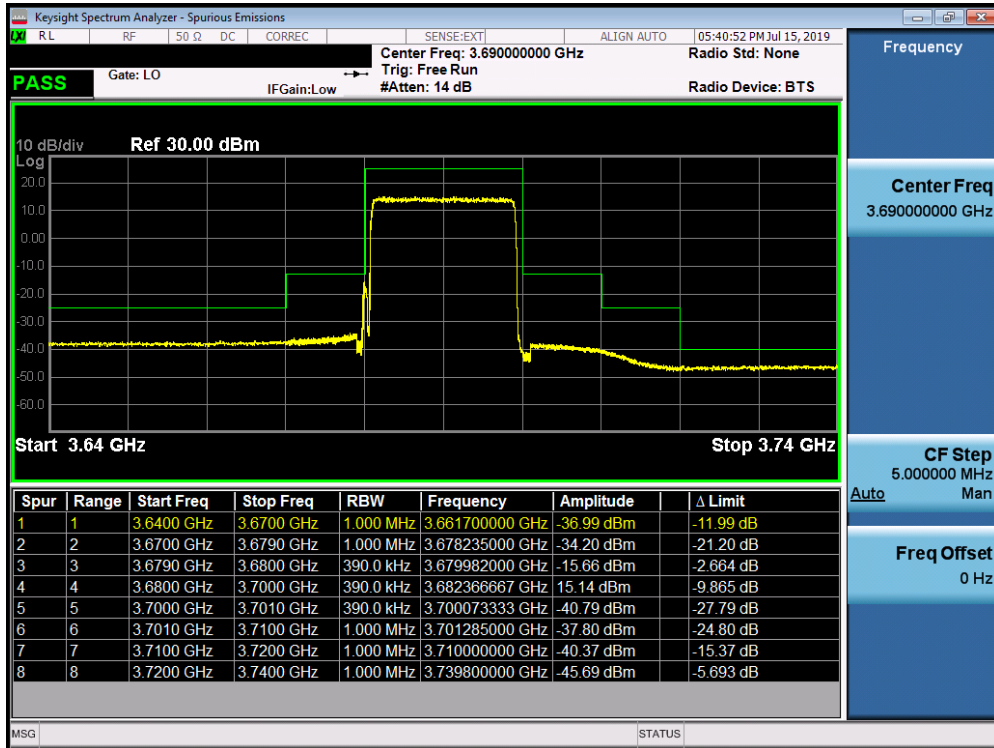


Plot 7-156. High Channel Edge Plot (20MHz Total Bandwidth QPSK)

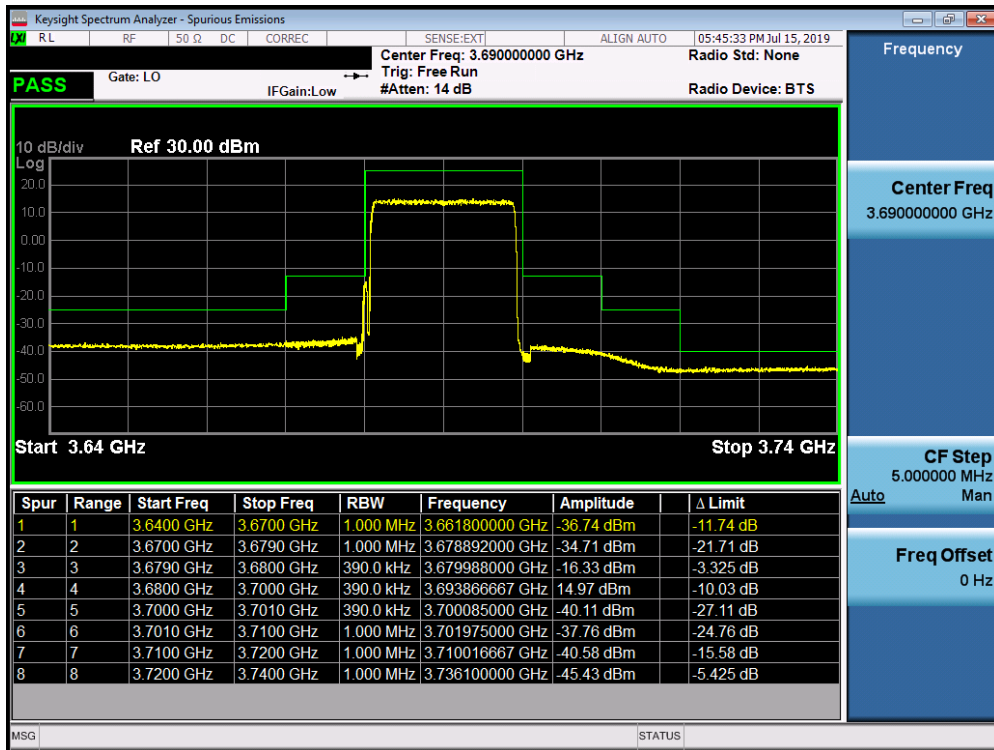


Plot 7-157. High Channel Edge Plot (20MHz Total Bandwidth 16QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 142 of 172



Plot 7-158. High Channel Edge Plot (20MHz Total Bandwidth 64QAM)



Plot 7-159. High Channel Edge Plot (20MHz Total Bandwidth 256QAM)

FCC ID: A3LMT6402-48A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1907220128-01.	Test Dates: 7/1/2019-7/29/2019	EUT Type: Massive MIMO CBSD		Page 143 of 172