PCTEST ENGINEERING LABORATORY, INC.
18855 Adams Court, Morgan Hill, CA 95037 USA
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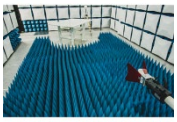

MEASUREMENT REPORT
LTE

Applicant Name:
Apple Inc.
One Apple Park Way
Cupertino, CA 95014
United States

Date of Testing:
05/02/2019 - 08/15/2019
Test Site/Location:
PCTEST Lab. Morgan Hill, CA, USA
Test Report Serial No.:
1C1905130009-03.BCG

FCC ID:	**BCG-A2156**
APPLICANT:	**Apple Inc.**

Application Type:	Certification
Model:	A2156
EUT Type:	Watch
FCC Classification:	PCS Licensed Transmitter Worn on Body (PCT)
FCC Rule Part(s):	22, 24, & 27
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez
President

ACCREDITED
TESTING CERT#2041.02

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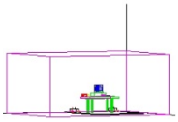
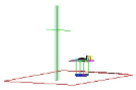


MEASUREMENT REPORT
FCC Part 22, 24, & 27



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		EIRP		Emission Designator	Modulation
			Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)		
LTE Band 5	22H	824.7 - 848.3	0.429	-3.68	0.703	-1.53	1M10G7W	QPSK
LTE Band 5	22H	824.7 - 848.3	0.367	-4.35	0.603	-2.20	1M11D7W	16QAM
LTE Band 5	22H	825.5 - 847.5	0.432	-3.65	0.708	-1.50	2M72G7W	QPSK
LTE Band 5	22H	825.5 - 847.5	0.377	-4.24	0.618	-2.09	2M72D7W	16QAM
LTE Band 5	22H	826.5 - 846.5	0.422	-3.75	0.692	-1.60	4M56G7W	QPSK
LTE Band 5	22H	826.5 - 846.5	0.376	-4.25	0.617	-2.10	4M56D7W	16QAM
LTE Band 5	22H	829 - 844	0.415	-3.82	0.681	-1.67	9M16G7W	QPSK
LTE Band 5	22H	829 - 844	0.383	-4.17	0.628	-2.02	5M47D7W	16QAM
LTE Band 26	22H	824.7 - 848.3	0.449	-3.48	0.736	-1.33	1M10G7W	QPSK
LTE Band 26	22H	824.7 - 848.3	0.372	-4.29	0.611	-2.14	1M11D7W	16QAM
LTE Band 26	22H	825.5 - 847.5	0.434	-3.63	0.711	-1.48	2M72G7W	QPSK
LTE Band 26	22H	825.5 - 847.5	0.377	-4.24	0.618	-2.09	2M72D7W	16QAM
LTE Band 26	22H	826.5 - 846.5	0.442	-3.55	0.724	-1.40	4M56G7W	QPSK
LTE Band 26	22H	826.5 - 846.5	0.370	-4.32	0.607	-2.17	4M56D7W	16QAM
LTE Band 26	22H	829 - 844	0.452	-3.45	0.741	-1.30	9M16G7W	QPSK
LTE Band 26	22H	829 - 844	0.363	-4.40	0.596	-2.25	5M47D7W	16QAM

EUT Overview (Low Bands)

Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (mW)	Max. Power (dBm)		
LTE Band 4	27	1710.7 - 1754.3	10.914	10.38	1M10G7W	QPSK
LTE Band 4	27	1710.7 - 1754.3	9.661	9.85	1M11D7W	16QAM
LTE Band 4	27	1711.5 - 1753.5	10.814	10.34	2M72G7W	QPSK
LTE Band 4	27	1711.5 - 1753.5	9.638	9.84	2M72D7W	16QAM
LTE Band 4	27	1712.5 - 1752.5	10.965	10.40	4M58G7W	QPSK
LTE Band 4	27	1712.5 - 1752.5	9.727	9.88	4M56D7W	16QAM
LTE Band 4	27	1715 - 1750	10.914	10.38	9M11G7W	QPSK
LTE Band 4	27	1715 - 1750	9.772	9.90	5M50D7W	16QAM
LTE Band 4	27	1717.5 - 1747.5	10.965	10.40	13M7G7W	QPSK
LTE Band 4	27	1717.5 - 1747.5	9.594	9.82	6M13D7W	16QAM
LTE Band 4	27	1720 - 1745	10.965	10.40	18M4G7W	QPSK
LTE Band 4	27	1720 - 1745	9.376	9.72	7M57D7W	16QAM
LTE Band 66	27	1710.7 - 1779.3	10.914	10.38	1M10G7W	QPSK
LTE Band 66	27	1710.7 - 1779.3	9.419	9.74	1M11D7W	16QAM
LTE Band 66	27	1711.5 - 1778.5	10.593	10.25	2M72G7W	QPSK
LTE Band 66	27	1711.5 - 1778.5	9.462	9.76	2M72D7W	16QAM
LTE Band 66	27	1712.5 - 1777.5	10.965	10.40	4M58G7W	QPSK
LTE Band 66	27	1712.5 - 1777.5	9.550	9.80	4M56D7W	16QAM
LTE Band 66	27	1715 - 1775	10.715	10.30	9M11G7W	QPSK
LTE Band 66	27	1715 - 1775	9.376	9.72	5M50D7W	16QAM
LTE Band 66	27	1717.5 - 1772.5	10.940	10.39	13M7G7W	QPSK
LTE Band 66	27	1717.5 - 1772.5	9.705	9.87	6M13D7W	16QAM
LTE Band 66	27	1720 - 1770	10.617	10.26	18M4G7W	QPSK
LTE Band 66	27	1720 - 1770	9.419	9.74	7M57D7W	16QAM
LTE Band 2	24E	1850.7 - 1909.3	13.868	11.42	1M11G7W	QPSK
LTE Band 2	24E	1850.7 - 1909.3	12.388	10.93	1M11D7W	16QAM
LTE Band 2	24E	1851.5 - 1908.5	13.521	11.31	2M73G7W	QPSK
LTE Band 2	24E	1851.5 - 1908.5	12.303	10.90	2M73D7W	16QAM
LTE Band 2	24E	1852.5 - 1907.5	13.772	11.39	4M56G7W	QPSK
LTE Band 2	24E	1852.5 - 1907.5	12.190	10.86	4M55D7W	16QAM
LTE Band 2	24E	1855 - 1905	13.740	11.38	9M11G7W	QPSK
LTE Band 2	24E	1855 - 1905	12.417	10.94	5M61D7W	16QAM
LTE Band 2	24E	1857.5 - 1902.5	14.454	11.60	13M7G7W	QPSK
LTE Band 2	24E	1857.5 - 1902.5	12.303	10.90	6M13D7W	16QAM
LTE Band 2	24E	1860 - 1900	14.521	11.62	18M2G7W	QPSK
LTE Band 2	24E	1860 - 1900	12.303	10.90	7M43D7W	16QAM
LTE Band 25	24E	1850.7 - 1914.3	13.964	11.45	1M11G7W	QPSK
LTE Band 25	24E	1850.7 - 1914.3	12.445	10.95	1M11D7W	16QAM
LTE Band 25	24E	1851.5 - 1913.5	13.583	11.33	2M73G7W	QPSK
LTE Band 25	24E	1851.5 - 1913.5	12.560	10.99	2M73D7W	16QAM
LTE Band 25	24E	1852.5 - 1912.5	13.932	11.44	4M56G7W	QPSK
LTE Band 25	24E	1852.5 - 1912.5	12.190	10.86	4M55D7W	16QAM
LTE Band 25	24E	1855 - 1910	13.459	11.29	9M11G7W	QPSK
LTE Band 25	24E	1855 - 1910	12.531	10.98	5M61D7W	16QAM
LTE Band 25	24E	1857.5 - 1907.5	14.555	11.63	13M7G7W	QPSK
LTE Band 25	24E	1857.5 - 1907.5	12.303	10.90	6M13D7W	16QAM
LTE Band 25	24E	1860 - 1905	13.836	11.41	18M2G7W	QPSK
LTE Band 25	24E	1860 - 1905	12.246	10.88	7M43D7W	16QAM

EUT Overview (Mid Bands)

Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (mW)	Max. Power (dBm)		
LTE Band 7	27	2502.5 - 2567.5	9.333	9.70	4M57G7W	QPSK
LTE Band 7	27	2502.5 - 2567.5	7.603	8.81	4M55D7W	16QAM
LTE Band 7	27	2505 - 2565	9.333	9.70	9M10G7W	QPSK
LTE Band 7	27	2505 - 2565	7.907	8.98	5M47D7W	16QAM
LTE Band 7	27	2507.5 - 2562.5	9.226	9.65	13M7G7W	QPSK
LTE Band 7	27	2507.5 - 2562.5	7.962	9.01	6M27D7W	16QAM
LTE Band 7	27	2510 - 2560	9.333	9.70	18M2G7W	QPSK
LTE Band 7	27	2510 - 2560	8.128	9.10	7M27D7W	16QAM
LTE Band 41	27	2498.5 - 2687.5	9.333	9.70	4M56G7W	QPSK
LTE Band 41	27	2498.5 - 2687.5	7.516	8.76	4M57D7W	16QAM
LTE Band 41	27	2501 - 2685	9.333	9.70	9M14G7W	QPSK
LTE Band 41	27	2501 - 2685	8.318	9.20	5M56D7W	16QAM
LTE Band 41	27	2503.5 - 2682.5	9.333	9.70	13M7G7W	QPSK
LTE Band 41	27	2503.5 - 2682.5	7.943	9.00	6M38D7W	16QAM
LTE Band 41	27	2506 - 2680	9.333	9.70	18M2G7W	QPSK
LTE Band 41	27	2506 - 2680	8.017	9.04	8M12D7W	16QAM

EUT Overview (High Bands)

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Morgan Hill, CA 95037, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (22831) test laboratory with the site description on file with ISED.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Watch FCC ID: BCG-A2156**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: D92YD00NM954, D92YF00AM958, FN69113003AK6RY5F

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n WLAN, Bluetooth (1x, EDR, HDR4, HDR8, LE), NFC

LTE Band 26 (814.7 – 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 – 849 MHz). Therefore, test data provided in this report covers Band 5 as well as Band 26.

LTE Band 66 (1710 - 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

LTE Band 25 (1850 – 1915 MHZ) overlaps the entire frequency range of LTE Band 2 (1850 – 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

This device supports simultaneous transmission operation, which allows for two transmitters to transmit simultaneously on the same antenna. The table below shows all configurations possible.

Simultaneous Tx Configurations	Antenna			
	FCM			
	Configuration 1	Configuration 2	Configuration 3	Configuration 4
WIFI 2.4GHz	✓	✓	×	×
Bluetooth	×	×	✓	✓
LTE Mid Bands	✓	×	✓	×
LTE High Bands	×	✓	×	✓

Table 2-1. Simultaneous Tx Configurations

✓= Support ; × = NOT Support

Worst Case Configuration

Description	Bluetooth	LTE
Antenna	FCM	FCM
Channel	39	40620
Operating Frequency (MHz)	2441	2593
Mode/Modulation	GFSK	QPSK/1RB/20MHz

Table 2-2. Worst Case Configuration

2.3 Antenna Description

Following antenna was used for the testing.

Frequency [MHz]	Antenna Gain (dBi)	
	BCM	FCM
814-849	-26.3	N/A
1710-1785	N/A	-13.6
1850-1915	N/A	-12.3
2496-2690	N/A	-13.3
2500-2570	N/A	-13.8

Table 2-3. Highest Antenna Gain

2.4 Test Support Equipment

1	Apple MacBook	Model:	A1398	S/N:	C2QKP008F6F3
	w/AC/DC Adapter	Model:	A1435	S/N:	N/A
2	Apple USB Cable	Model:	Kanzi	S/N:	311C81
	w/ Charging Dock	Model:	FAPS73	S/N:	17481001022
	w/ Dock	Model:	X241	S/N:	GW17F01ST22
3	USB Lightning Cable	Model:	N/A	S/N:	N/A
	w/ AC Adapter	Model:	A1385	S/N:	N/A
4	Wireless Charging Pad (WCP)	Model:	EVT	S/N:	DLC915600ECLNWL3K
	Wireless Charging Pad (WCP)	Model:	EVT	S/N:	DLC9156006TLNWK3V
5	Test Pathfinder Sinsa Board	Model:	X1456	S/N:	920-062535-01
	w/ SiP Cradle	Model:	P1 X1454S	S/N:	920-06373-02
6	DC Power Supply	Model:	KPS3010D	S/N:	N/A
7	Mobile Comm DC Source	Model:	66321D	S/N:	MY52000555

Table 2-4. Test Support Equipment Used

2.5 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

The worst case configuration was investigated for all combinations of the four materials, aluminum, stainless steel, ceramic, and aluminum/ceramic mix, and various types of wristbands, metal and non-metal wristbands. The store display sample was investigated and determined as not the worst case. The EUT was also investigated with and without wireless charger. The worst case configuration found was used for all testing.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power channel and the worst case configuration.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

This device only supports 27RBs or less for 16-QAM uplink.

2.6 Software and Firmware

The test was conducted with firmware version wOS 6.0 installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

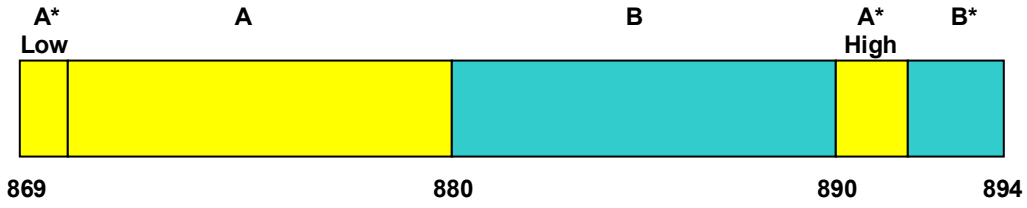
No EMI suppression device(s) were added and no modifications were made during testing.

3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

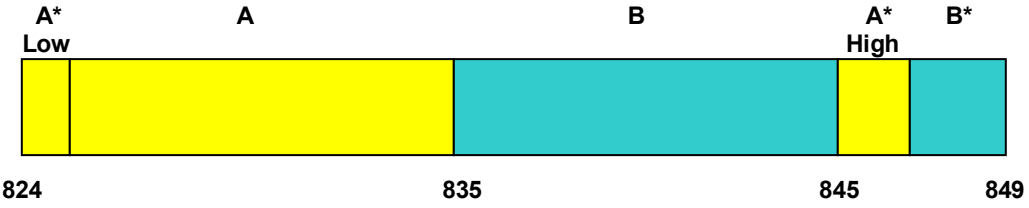
The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

3.2 Cellular - Base Frequency Blocks



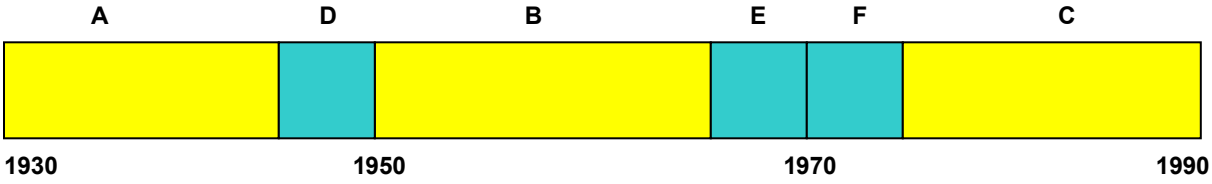
BLOCK 1: 869 – 880 MHz (A* Low + A)
BLOCK 2: 880 – 890 MHz (B)
BLOCK 3: 890 – 891.5 MHz (A* High)
BLOCK 4: 891.5 – 894 MHz (B*)

3.3 Cellular - Mobile Frequency Blocks



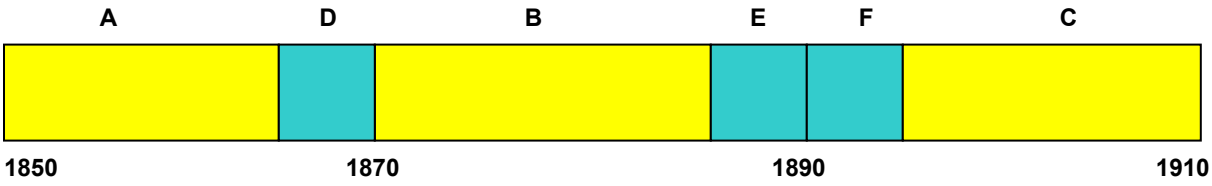
BLOCK 1: 824 – 835 MHz (A* Low + A)
BLOCK 2: 835 – 845 MHz (B)
BLOCK 3: 845 – 846.5 MHz (A* High)
BLOCK 4: 846.5 – 849 MHz (B*)

3.4 PCS - Base Frequency Blocks



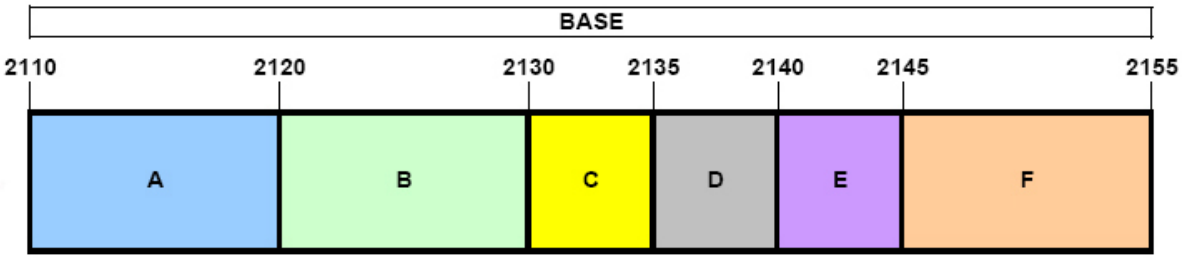
BLOCK 1: 1930 – 1945 MHz (A)
BLOCK 2: 1945 – 1950 MHz (D)
BLOCK 3: 1950 – 1965 MHz (B)
BLOCK 4: 1965 – 1970 MHz (E)
BLOCK 5: 1970 – 1975 MHz (F)
BLOCK 6: 1975 – 1990 MHz (C)

3.5 PCS - Mobile Frequency Blocks



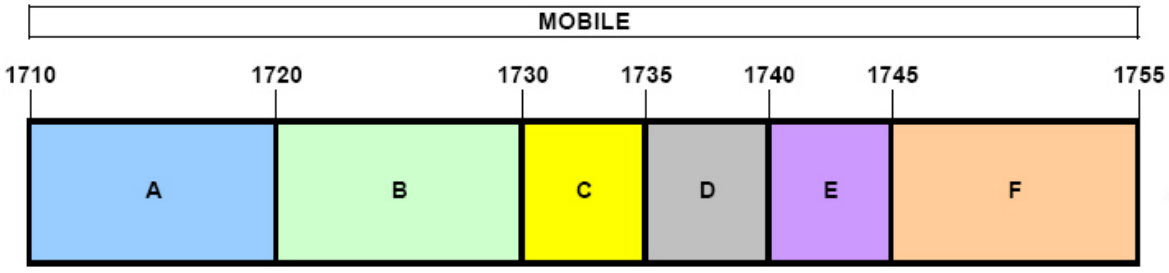
BLOCK 1: 1850 – 1865 MHz (A)
BLOCK 2: 1865 – 1870 MHz (D)
BLOCK 3: 1870 – 1885 MHz (B)
BLOCK 4: 1885 – 1890 MHz (E)
BLOCK 5: 1890 – 1895 MHz (F)
BLOCK 6: 1895 – 1910 MHz (C)

3.6 AWS - Base Frequency Blocks



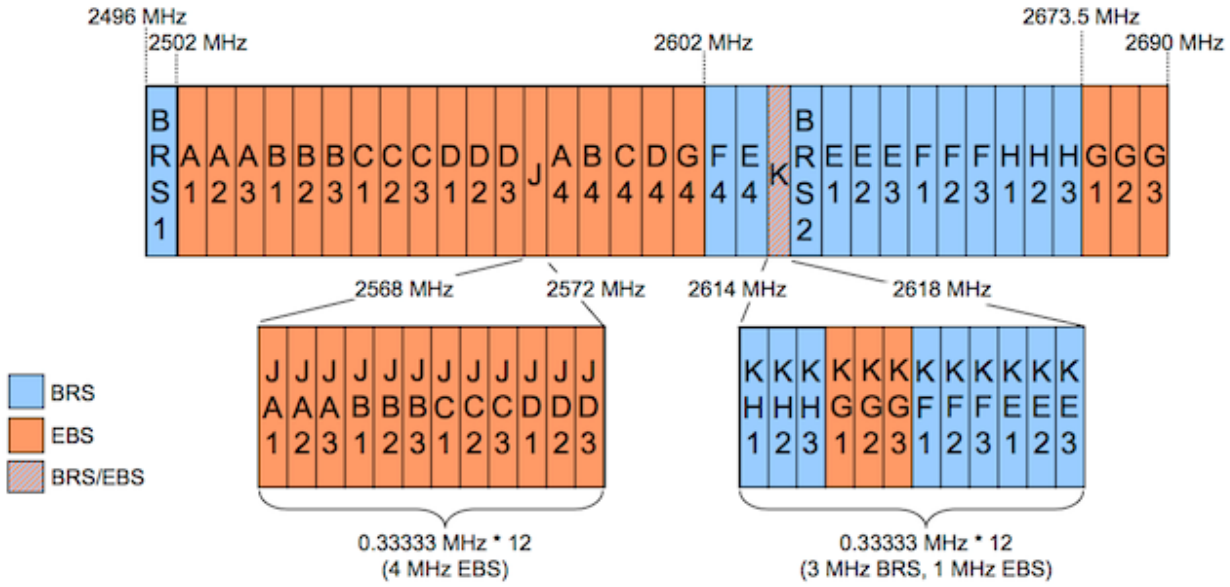
BLOCK 1: 2110 – 2120 MHz (A)
BLOCK 2: 2120 – 2130 MHz (B)
BLOCK 3: 2130 – 2135 MHz (C)
BLOCK 4: 2135 – 2140 MHz (D)
BLOCK 5: 2140 – 2145 MHz (E)
BLOCK 6: 2145 – 2155 MHz (F)

3.7 AWS - Mobile Frequency Blocks



BLOCK 1: 1710 – 1720 MHz (A)
BLOCK 2: 1720 – 1730 MHz (B)
BLOCK 3: 1730 – 1735 MHz (C)
BLOCK 4: 1735 – 1740 MHz (D)
BLOCK 5: 1740 – 1745 MHz (E)
BLOCK 6: 1745 – 1755 MHz (F)

3.8 BRS/EBS Frequency Block



3.9 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Per the guidelines of KDB 412172 D01 v01r01, radiated power levels are measured using the following formula:

$$\text{ERP or EIRP} = P_T + G_T - L_C$$

Where P_T is the transmitter output power, expressed in dBm, G_T is the gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP), and L_C signal attenuation in the connecting cable between the transmitter and antenna in dB.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10 $\log_{10}$(Power $_{[Watts]}$). For Band 7 and 41, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of 55 + 10 $\log_{10}$(Power $_{[Watts]}$).

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.29
Radiated Disturbance (<1GHz)	4.15
Radiated Disturbance (>1GHz)	4.70
Radiated Disturbance (>18GHz)	5.01
Temperature	0.01

5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	3/13/2019	Annual	3/13/2020	MY49430244
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	9/10/2018	Annual	9/10/2019	T058701-03
ESPEC	SU-241	Tabletop Temperature Chamber	8/10/2018	Annual	8/10/2019	92009574
ETS-Lindgren	118490	Pre-Amplifier (30MHz - 6GHz)	8/31/2018	Annual	8/31/2019	213236
ETS-Lindgren	3142E	BiConiLog Antenna (30MHz - 6GHz)	12/11/2018	Annual	12/11/2019	224569
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	2/27/2019	Annual	2/27/2020	101619
Rohde & Schwarz	ESW26	EMI Test Receiver	5/21/2019	Annual	5/21/2020	101299
Rohde & Schwarz	ESW44	EMI Test Receiver	11/20/2018	Annual	11/20/2019	101570
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	8/10/2018	Annual	8/10/2019	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	11/16/2018	Annual	11/16/2019	164715
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	1/8/2019	Annual	1/8/2020	166869
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	9/5/2018	Annual	9/5/2019	100050
Rohde & Schwarz	TC-TA18	Cross Polarized Vivaldi Antenna (400MHz-18GHz)	11/21/2018	Annual	11/21/2019	101057
Rohde & Schwarz	TC-TA18	Cross Polarized Vivaldi Antenna (400MHz-18GHz)	12/7/2018	Annual	12/7/2019	101063
Rohde & Schwarz	HFH2-Z2	Loop Antenna	3/21/2019	Annual	3/21/2020	100519

Table 5-1. Test Equipment

Notes:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7W

LTE BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
W = Combination of Any

QAM Modulation

Emission Designator = 8M45D7W

LTE BW = 8.45 MHz
D = Amplitude/Angle Modulated
7 = Quantized/Digital Info
W = Combination of Any

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.

FCC ID: BCG-A2156

FCC Classification: 22, 24, & 27

Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.2
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Out of Band Emissions	> 43 + 10 $\log_{10}$ (P[Watts]) at Band Edge and for all out-of-band emissions			Section 7.3, 7.4
27.53(m)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.3, 7.4
24.232(d) 27.50(d)(5)	Peak-Average Ratio	< 13 dB			Section 7.5
2.1046	Transmitter Conducted Output Power	N/A			Section 7.6
2.1055 22.355 24.235 27.54	Frequency Stability	< 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)			Section 7.8

Table 7-1. Summary of Conducted Test Results

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 26/5)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.6
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 25/2, 7, 41)	< 2 Watts max. EIRP			Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 66/4)	< 1 Watts max. EIRP			Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions	> 43 + 10 $\log_{10}$ (P[Watts]) for all out-of-band emissions			Section 7.7
27.53(m)	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.7

Table 7-2. Summary of Radiated Test Results

Notes:

1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots (Sections 7.2, 7.3, 7.4, 7.5) were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "LTE Automation," Version 4.8.

7.2 Occupied Bandwidth

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 4.2

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

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

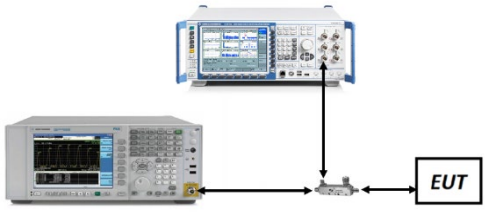


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

This device only supports 27RBs or less for 16-QAM uplink.

Mode	BW (MHz)	Modulation	Occupied BW [kHz]
LTE Band 5	1.4	QPSK	1103.6
LTE Band 5	1.4	16QAM	1107.7
LTE Band 5	3	QPSK	2723.7
LTE Band 5	3	16QAM	2721.5
LTE Band 5	5	QPSK	4556.6
LTE Band 5	5	16QAM	4557.7
LTE Band 5	10	QPSK	9164.1
LTE Band 5	10	16QAM	5472.5
LTE Band 26	1.4	QPSK	1103.6
LTE Band 26	1.4	16QAM	1107.7
LTE Band 26	3	QPSK	2723.7
LTE Band 26	3	16QAM	2721.5
LTE Band 26	5	QPSK	4556.6
LTE Band 26	5	16QAM	4557.7
LTE Band 26	10	QPSK	9164.1
LTE Band 26	10	16QAM	5472.5

Table 7-3. Occupied Band Width Results (Low Bands)

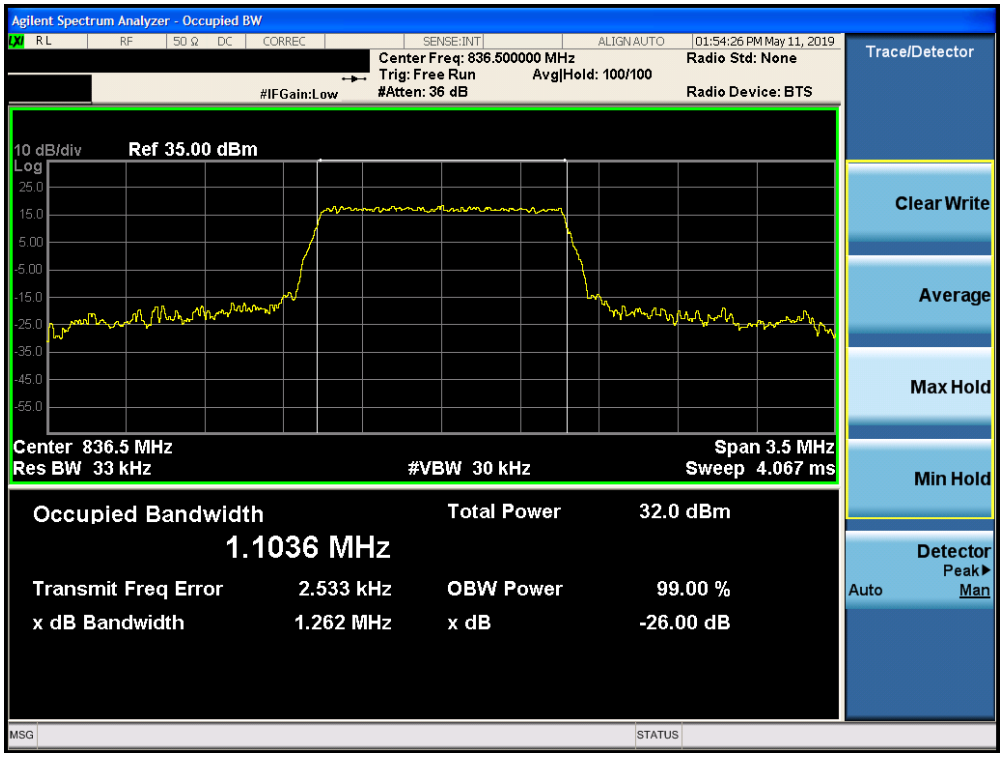
Mode	BW (MHz)	Modulation	Occupied BW [kHz]
LTE Band 4	1.4	QPSK	1104.3
LTE Band 4	1.4	16QAM	1107.2
LTE Band 4	3	QPSK	2724.4
LTE Band 4	3	16QAM	2722.2
LTE Band 4	5	QPSK	4575.0
LTE Band 4	5	16QAM	4559.9
LTE Band 4	10	QPSK	9111.7
LTE Band 4	10	16QAM	5502.3
LTE Band 4	15	QPSK	13659.2
LTE Band 4	15	16QAM	6134.9
LTE Band 4	20	QPSK	18375.1
LTE Band 4	20	16QAM	7567.7
LTE Band 66	1.4	QPSK	1104.3
LTE Band 66	1.4	16QAM	1107.2
LTE Band 66	3	QPSK	2724.4
LTE Band 66	3	16QAM	2722.2
LTE Band 66	5	QPSK	4575.0
LTE Band 66	5	16QAM	4559.9
LTE Band 66	10	QPSK	9111.7
LTE Band 66	10	16QAM	5502.3
LTE Band 66	15	QPSK	13659.2
LTE Band 66	15	16QAM	6134.9
LTE Band 66	20	QPSK	18375.1
LTE Band 66	20	16QAM	7567.7
LTE Band 2	1.4	QPSK	1105.4
LTE Band 2	1.4	16QAM	1106.8
LTE Band 2	3	QPSK	2731.0
LTE Band 2	3	16QAM	2734.0
LTE Band 2	5	QPSK	4556.0
LTE Band 2	5	16QAM	4548.0
LTE Band 2	10	QPSK	9108.5
LTE Band 2	10	16QAM	5608.2
LTE Band 2	15	QPSK	13660.2
LTE Band 2	15	16QAM	6128.4
LTE Band 2	20	QPSK	18164.1
LTE Band 2	20	16QAM	7428.3
LTE Band 25	1.4	QPSK	1105.4
LTE Band 25	1.4	16QAM	1106.8
LTE Band 25	3	QPSK	2731.0
LTE Band 25	3	16QAM	2734.0
LTE Band 25	5	QPSK	4556.0
LTE Band 25	5	16QAM	4548.0
LTE Band 25	10	QPSK	9108.5
LTE Band 25	10	16QAM	5608.2
LTE Band 25	15	QPSK	13660.2
LTE Band 25	15	16QAM	6128.4
LTE Band 25	20	QPSK	18164.1
LTE Band 25	20	16QAM	7428.3

Table 7-4. Occupied Band Width Results (Mid Bands)

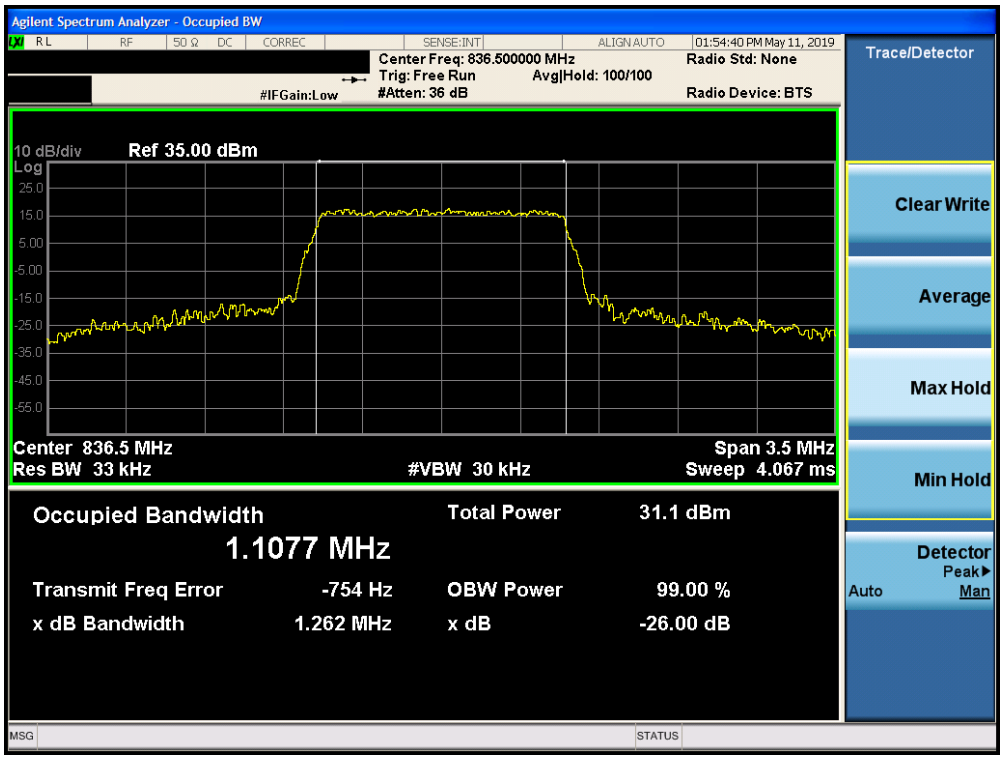
Mode	BW (MHz)	Modulation	Occupied BW [kHz]
LTE Band 7	5	QPSK	4574.1
LTE Band 7	5	16QAM	4547.4
LTE Band 7	10	QPSK	9104.1
LTE Band 7	10	16QAM	5472.2
LTE Band 7	15	QPSK	13712.1
LTE Band 7	15	16QAM	6270.0
LTE Band 7	20	QPSK	18182.4
LTE Band 7	20	16QAM	7267.7
LTE Band 41	5	QPSK	4561.8
LTE Band 41	5	16QAM	4566.8
LTE Band 41	10	QPSK	9140.1
LTE Band 41	10	16QAM	5558.0
LTE Band 41	15	QPSK	13662.4
LTE Band 41	15	16QAM	6381.9
LTE Band 41	20	QPSK	18206.0
LTE Band 41	20	16QAM	8120.8

Table 7-5. Occupied Band Width Results (High Bands)

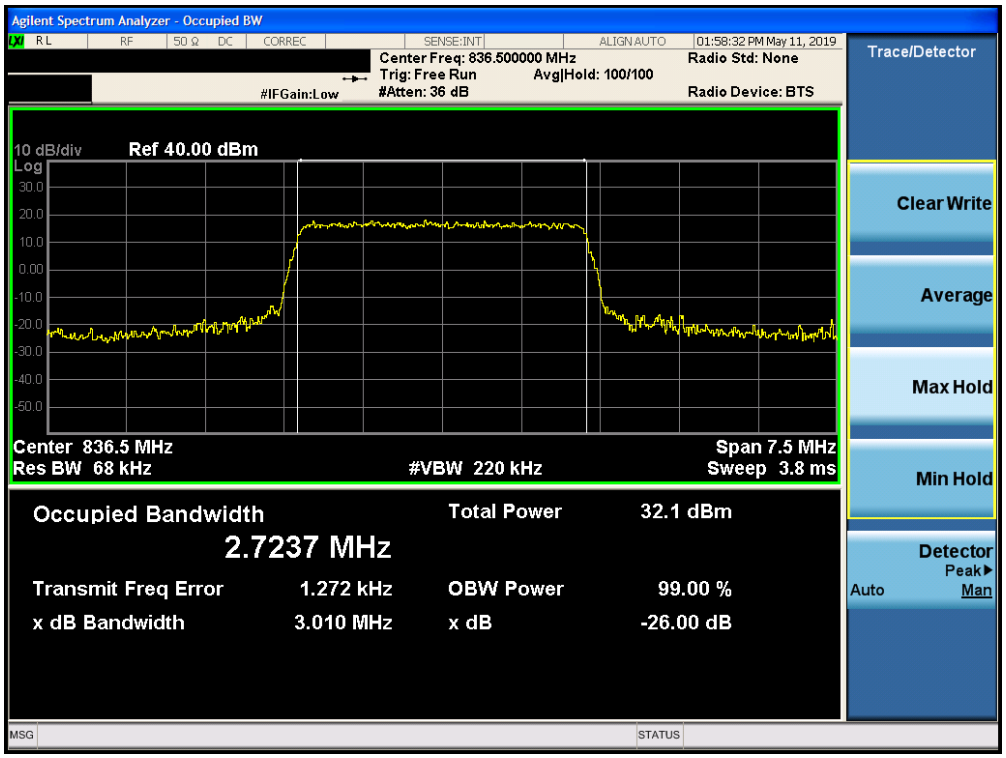
Band 26/5



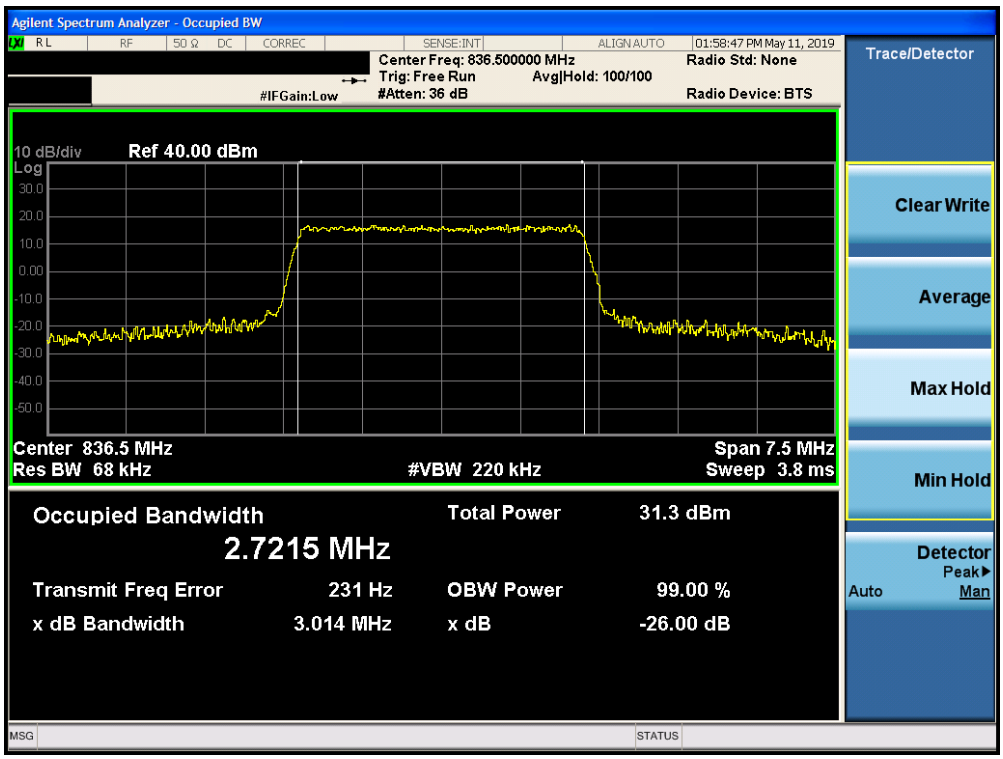
Plot 7-1. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)



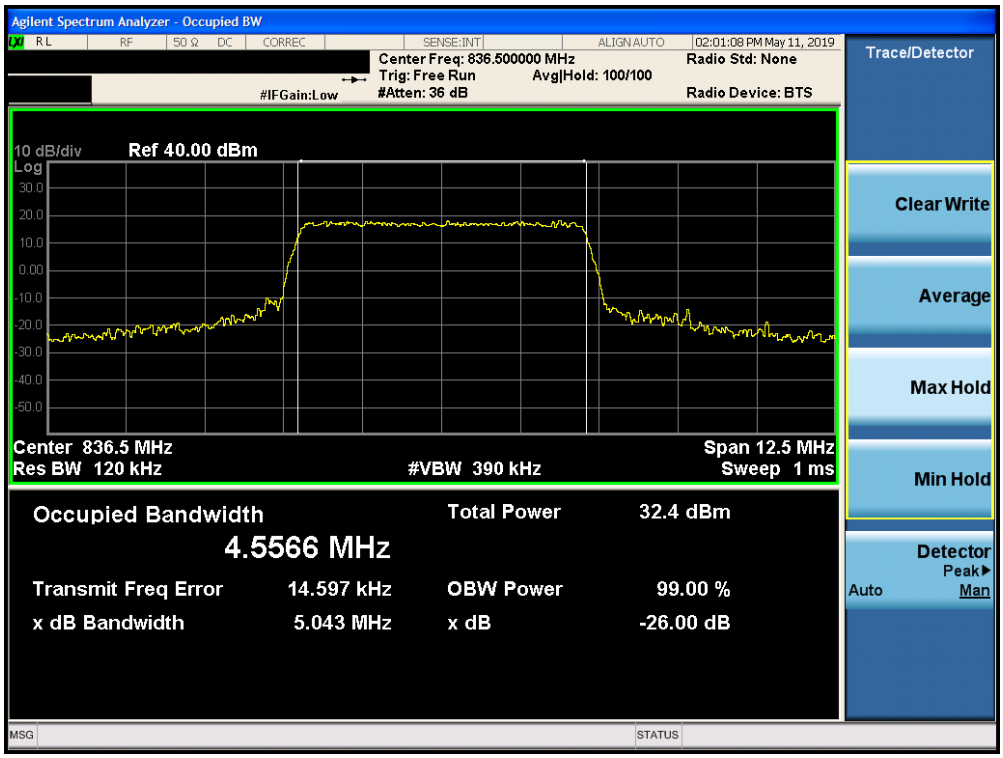
Plot 7-2. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 16-QAM - Full RB Configuration)



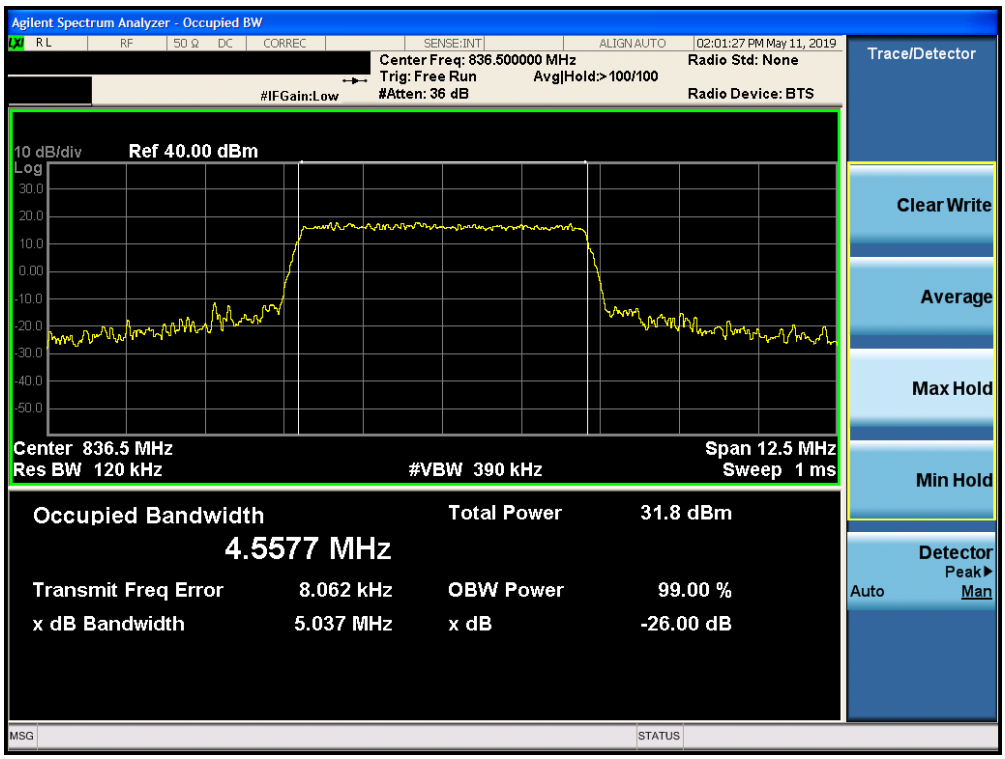
Plot 7-3. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)



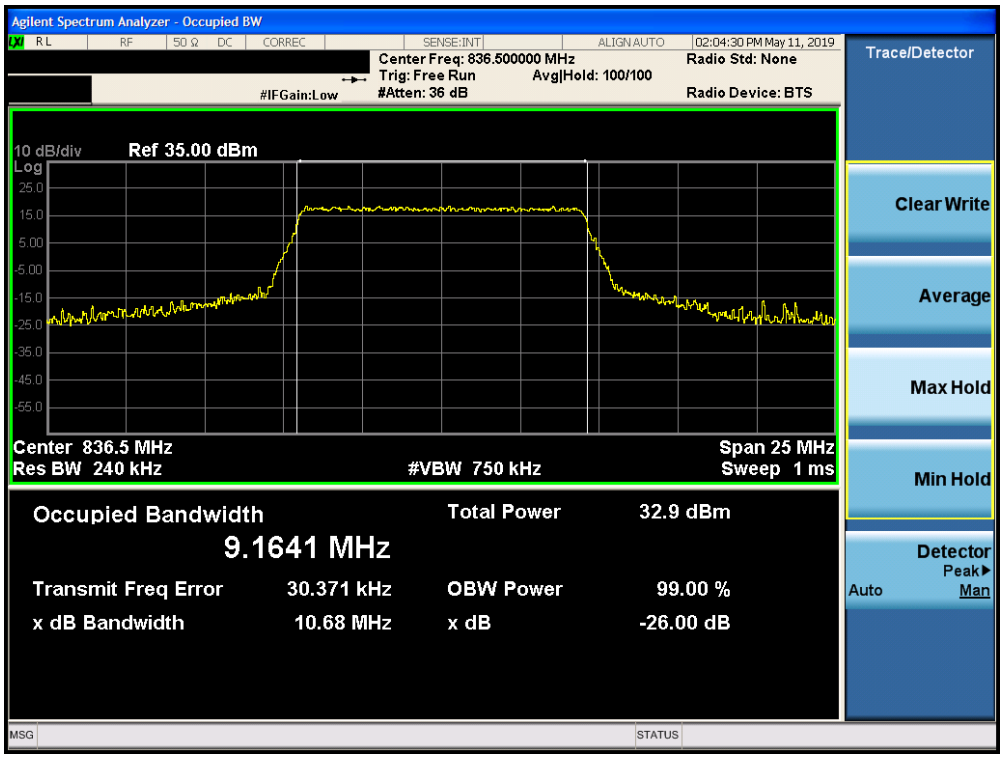
Plot 7-4. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-5. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)

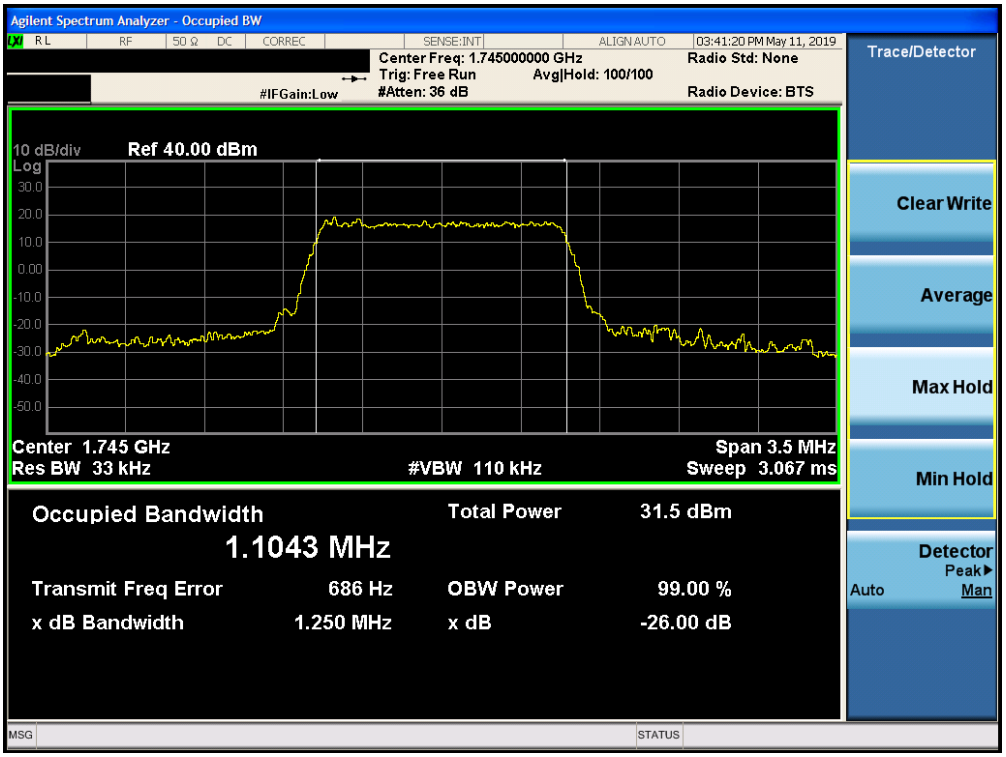


Plot 7-6. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 16-QAM - Full RB Configuration)

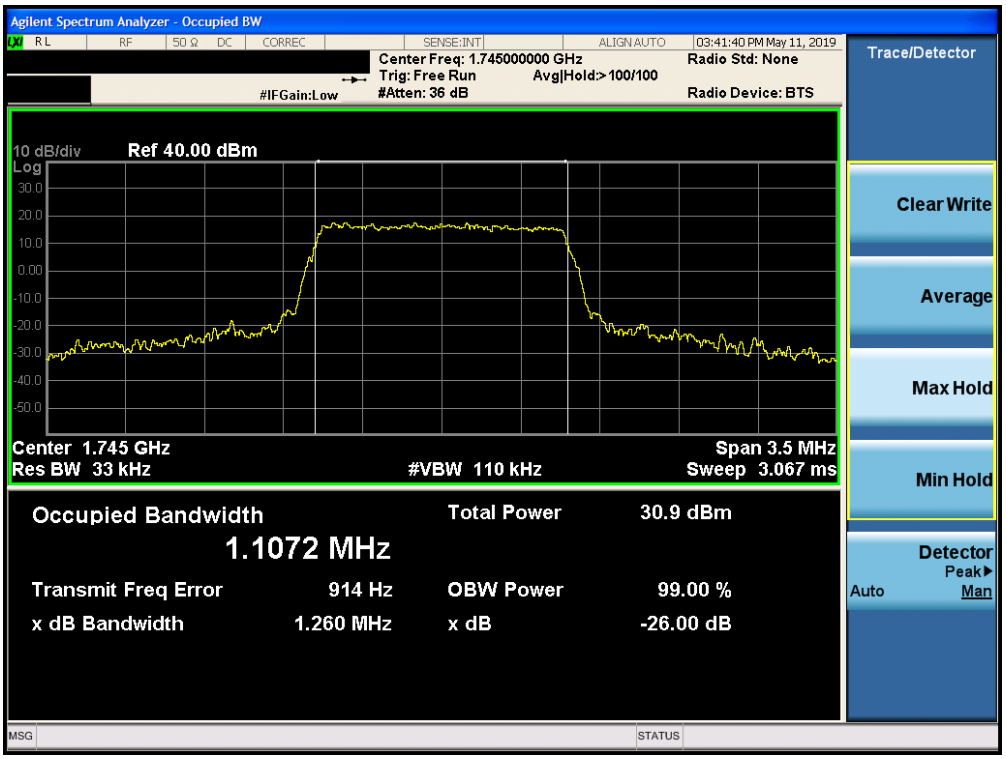


Plot 7-7. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)

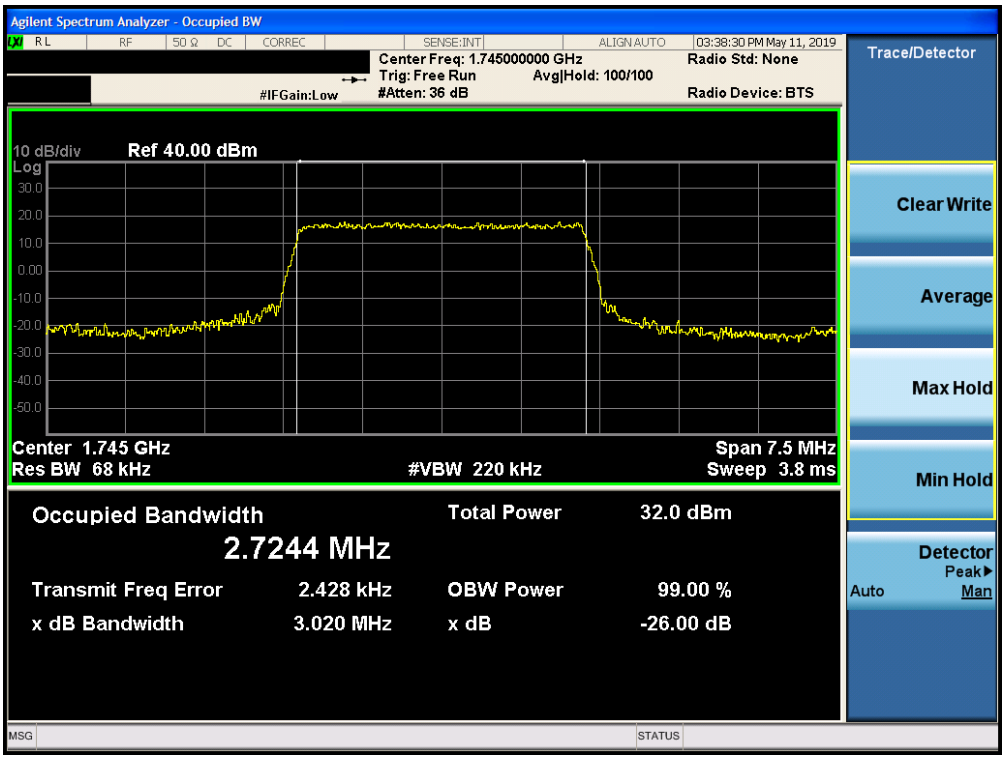
Plot 7-8. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 16-QAM – Full RB (27/0) Configuration)



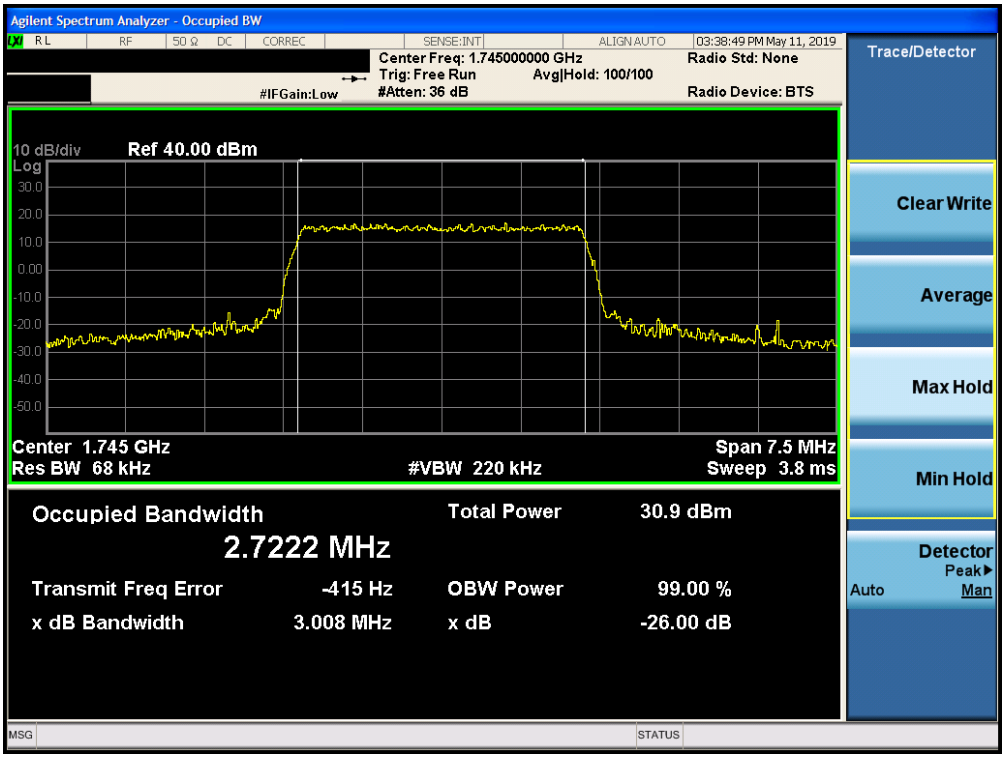
Plot 7-9. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)



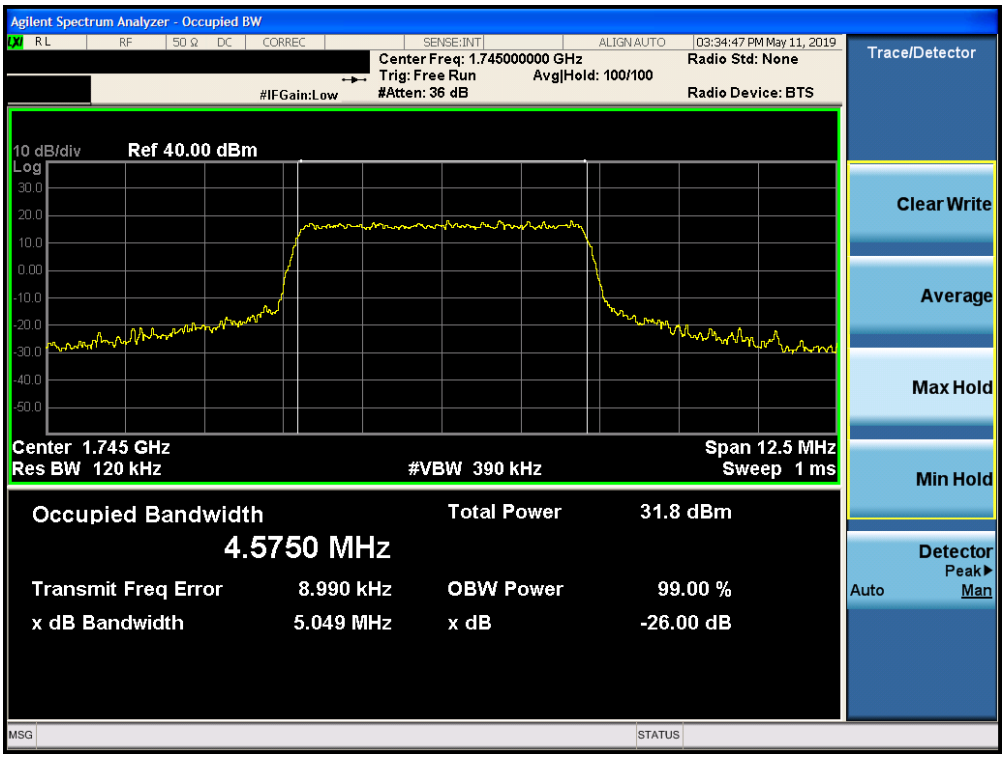
Plot 7-10. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)



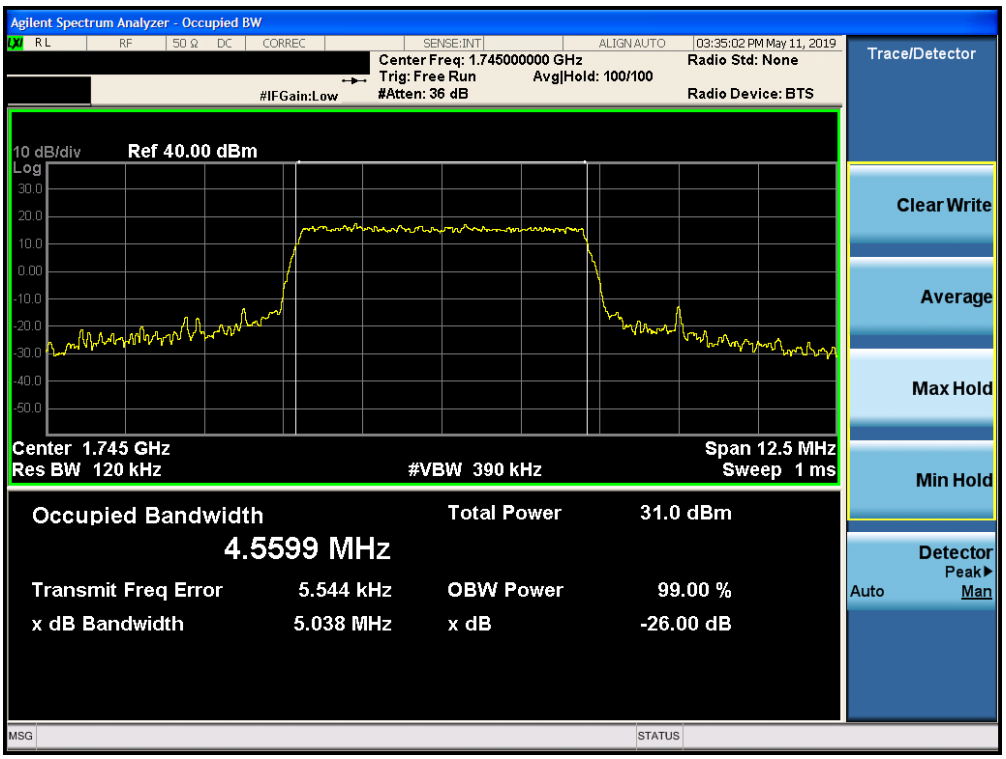
Plot 7-11. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



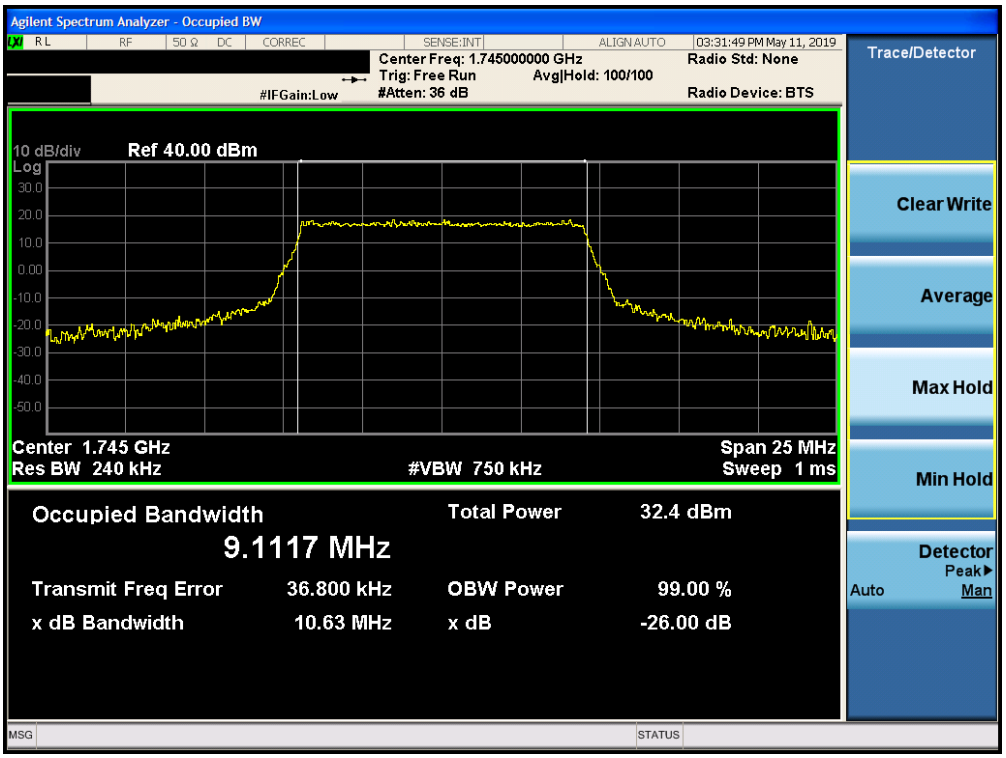
Plot 7-12. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)



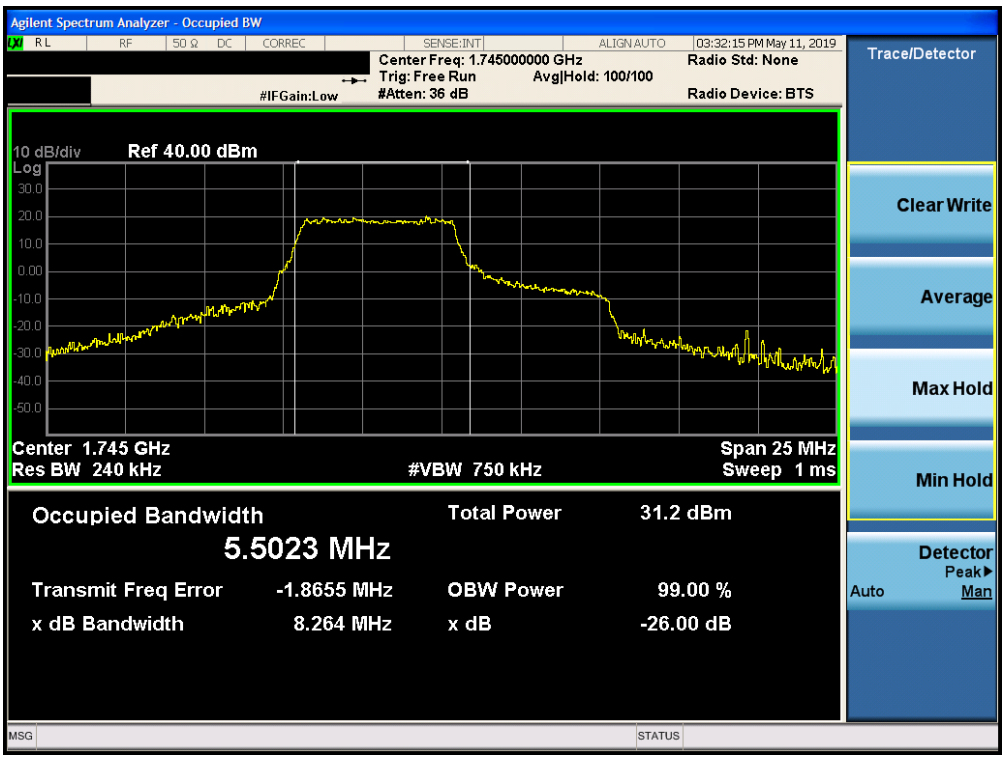
Plot 7-13. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



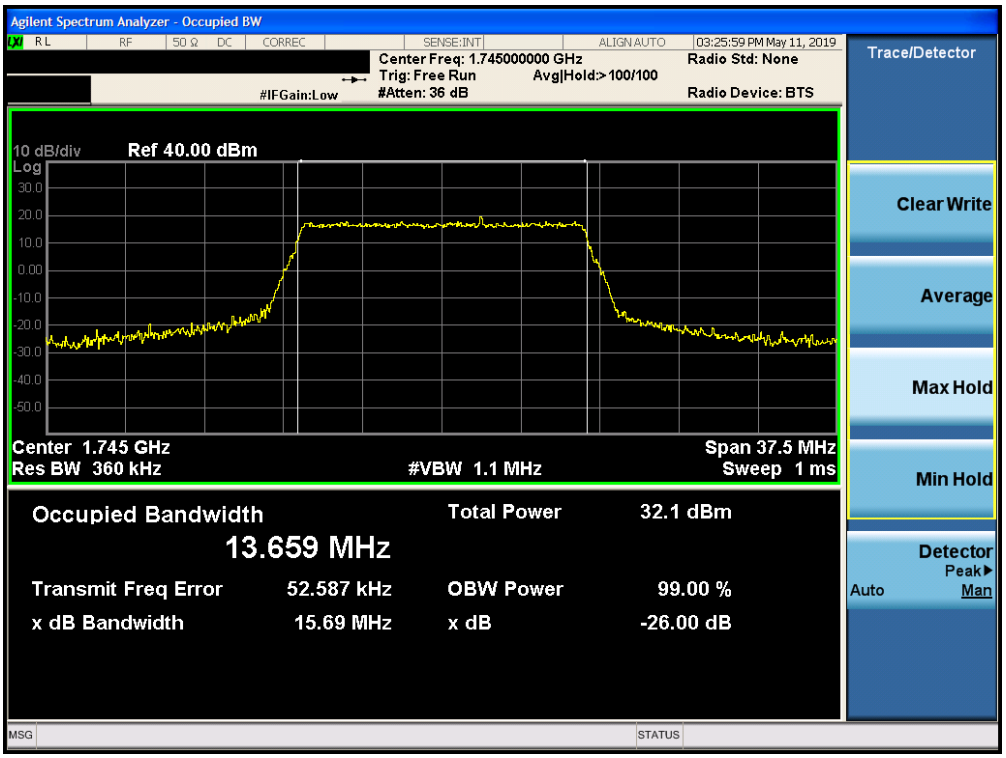
Plot 7-14. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)



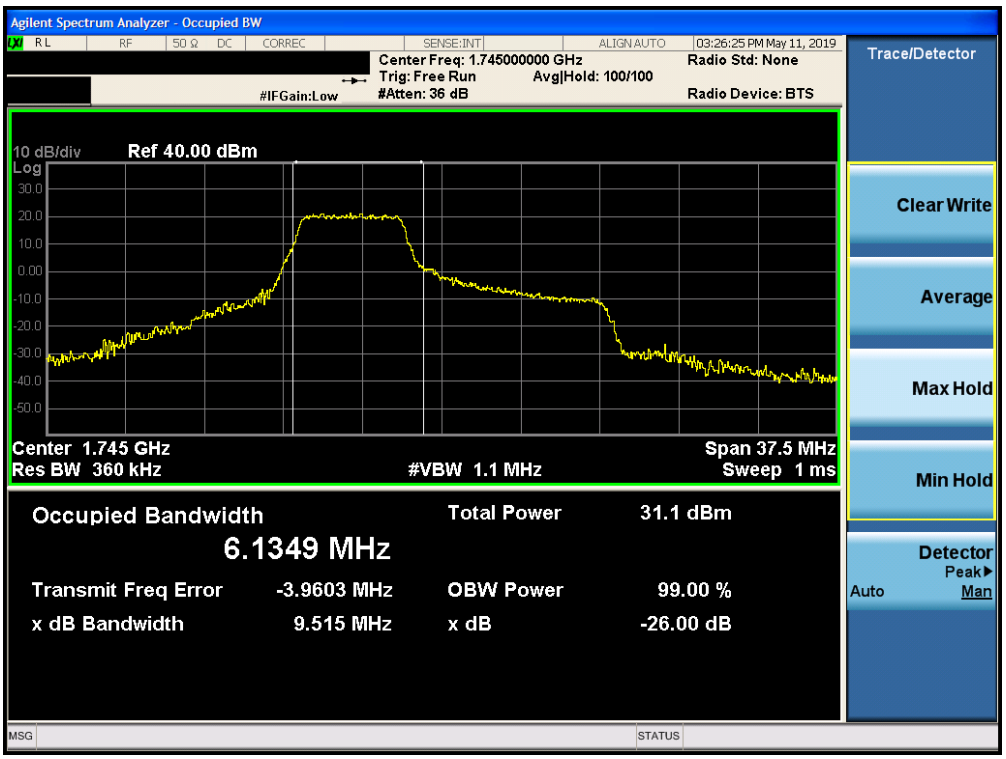
Plot 7-15. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



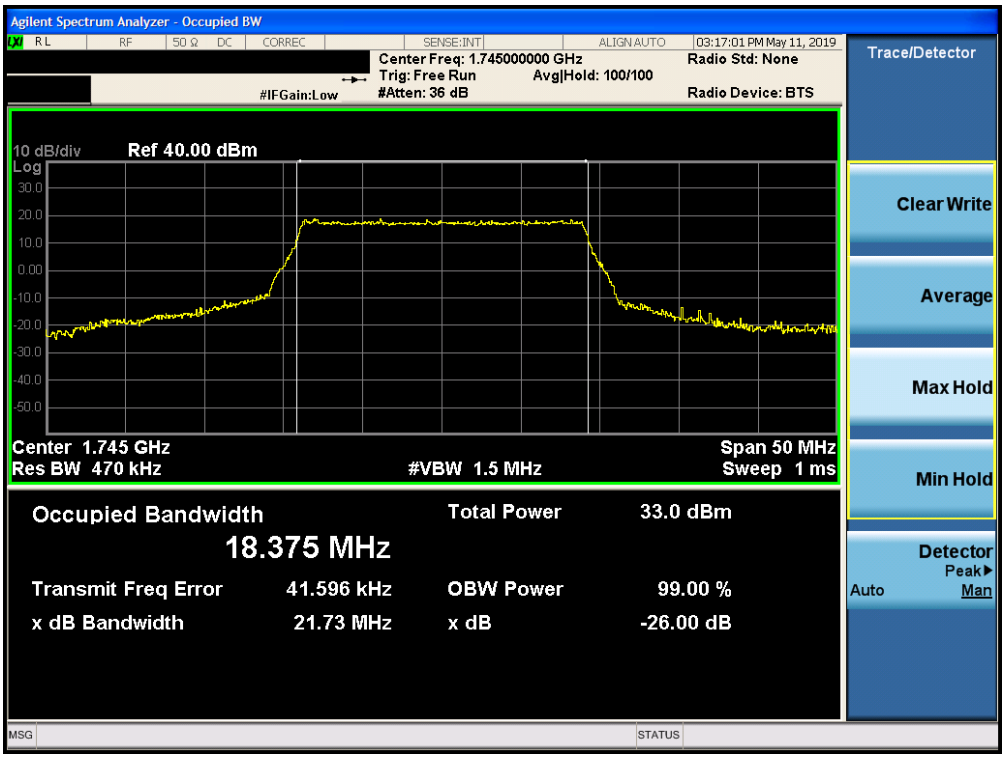
Plot 7-16. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB (27/0) Configuration)



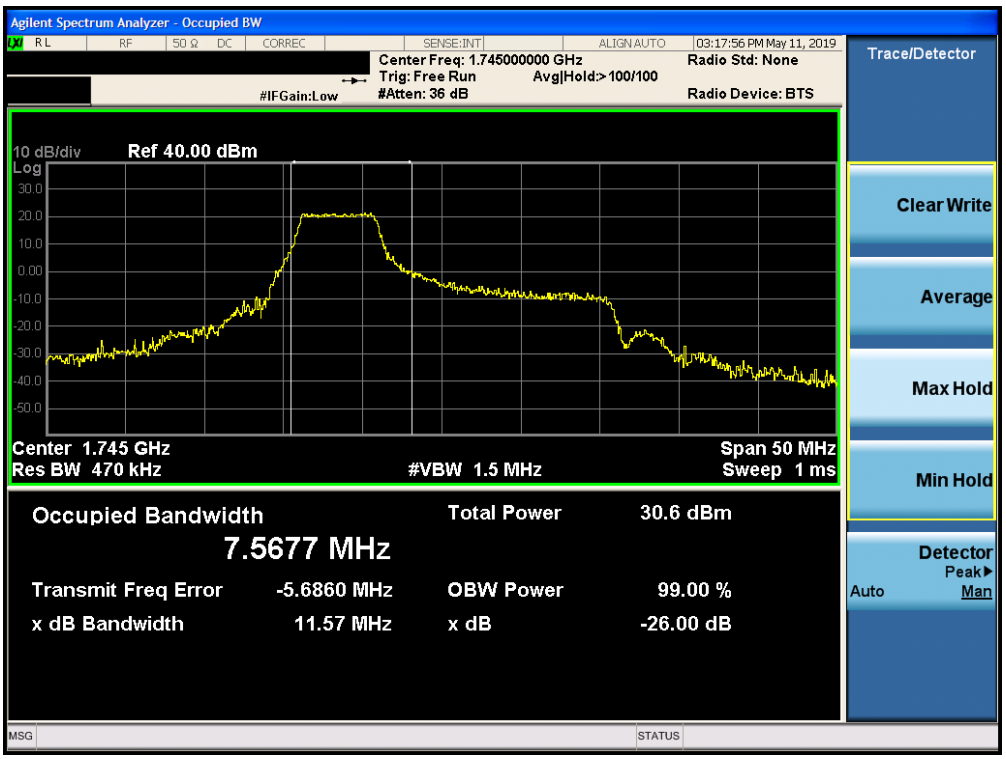
Plot 7-17. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-18. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB (27/0) Configuration)



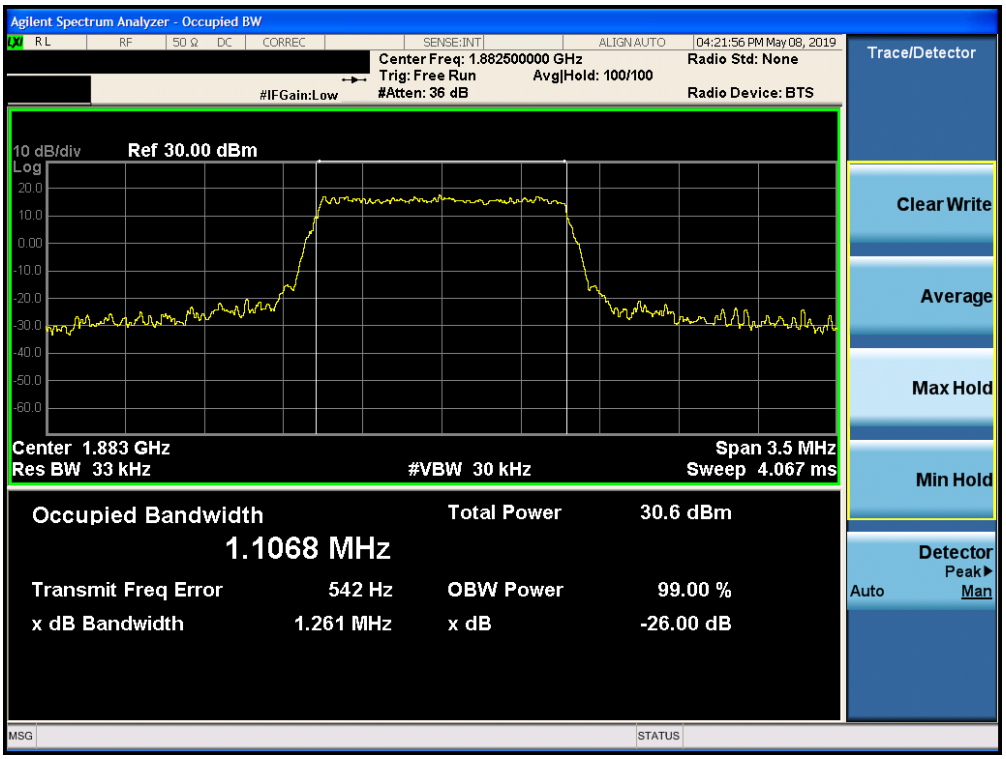
Plot 7-19. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



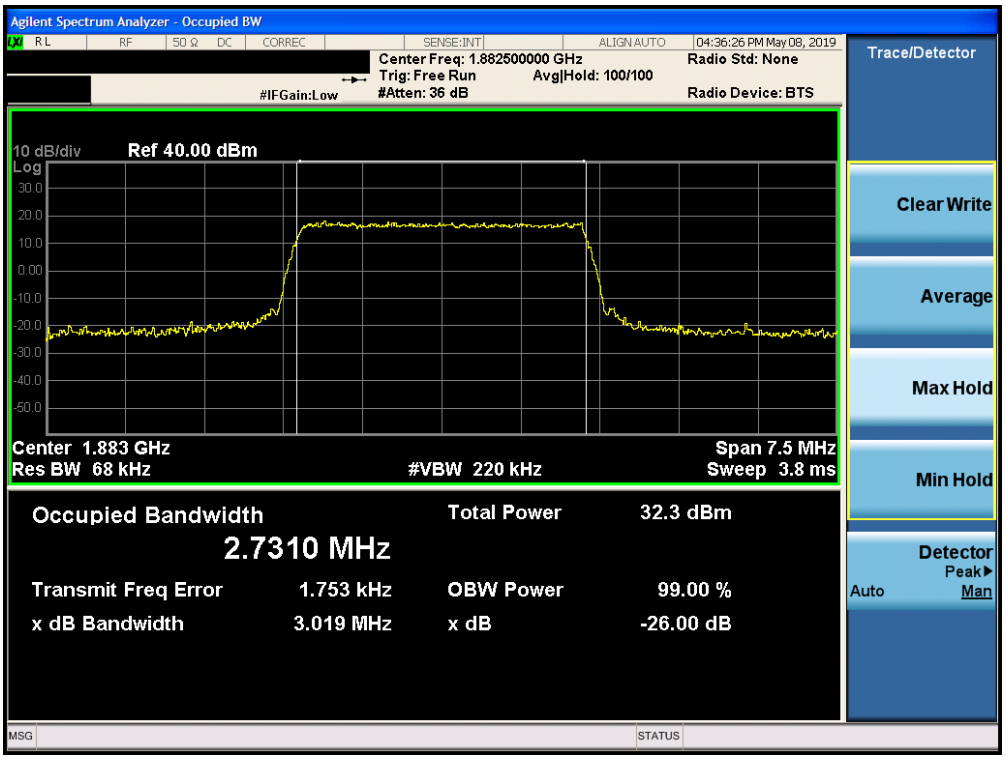
Plot 7-20. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB (27/0) Configuration)

Band 25/2

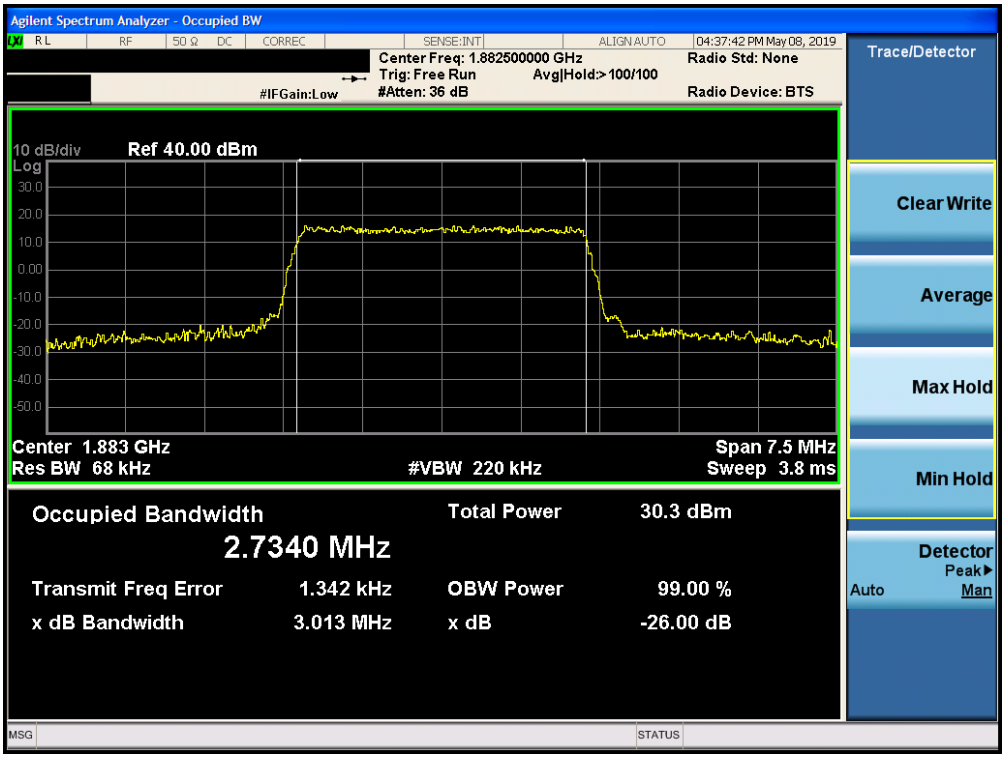
Plot 7-21. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



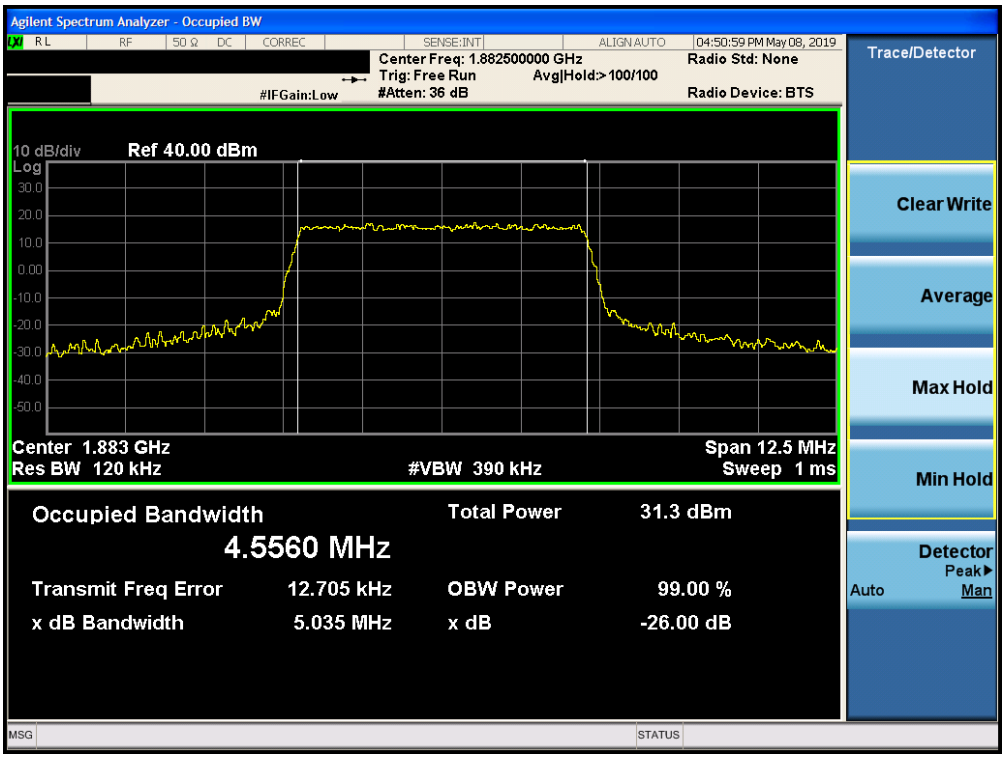
Plot 7-22. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



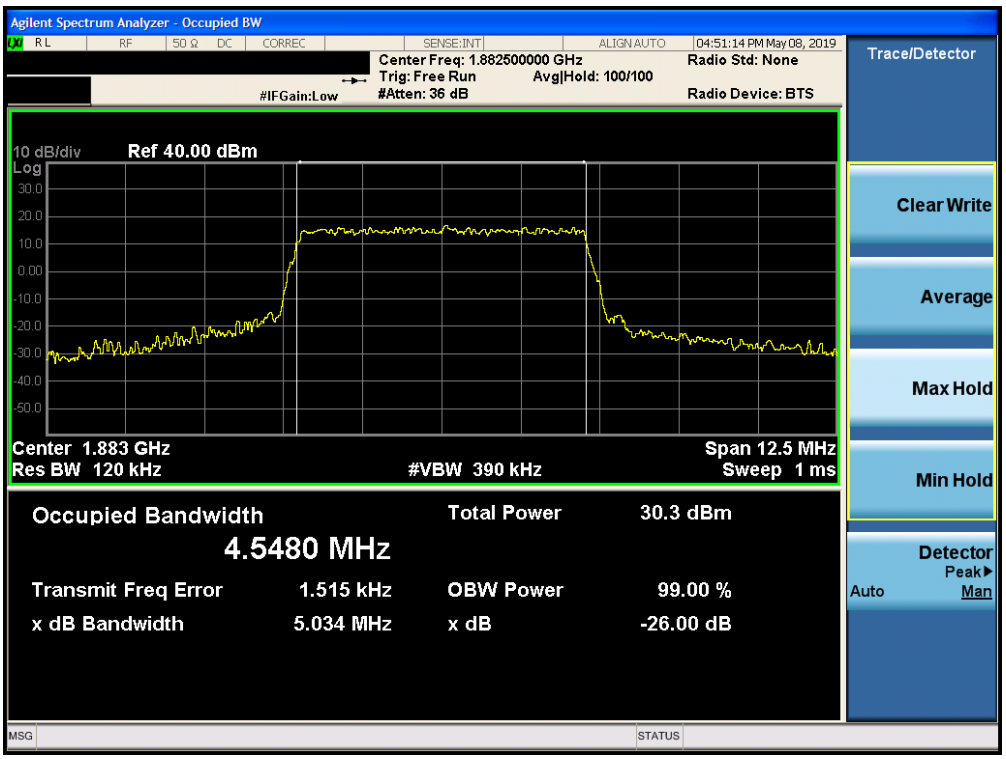
Plot 7-23. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



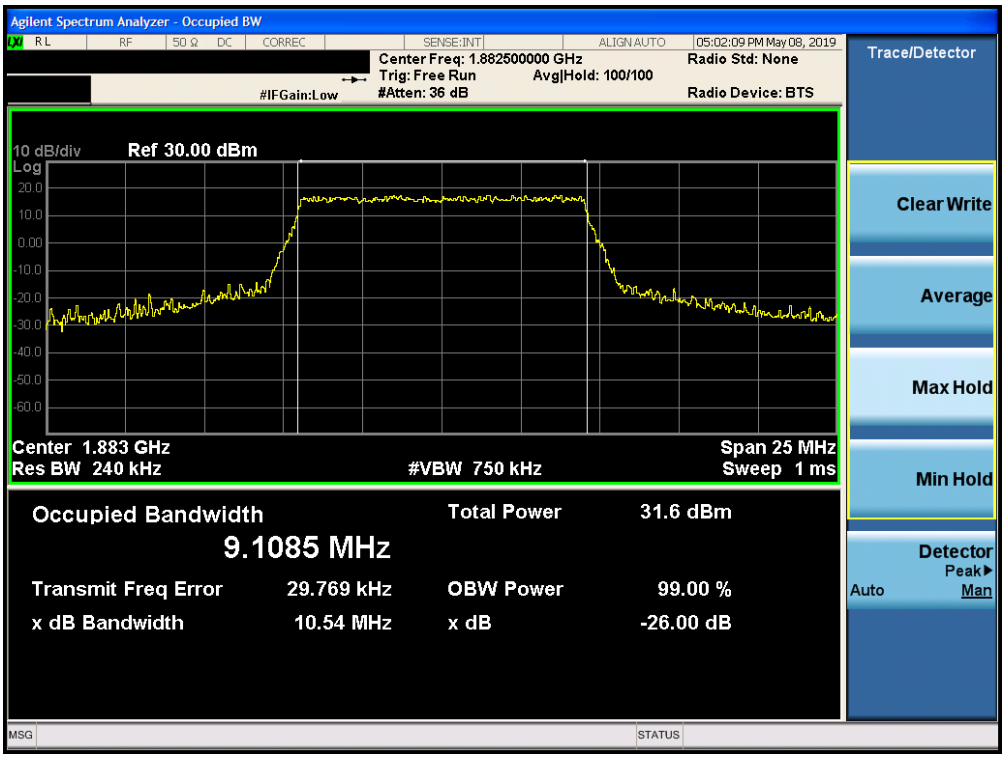
Plot 7-24. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



Plot 7-25. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

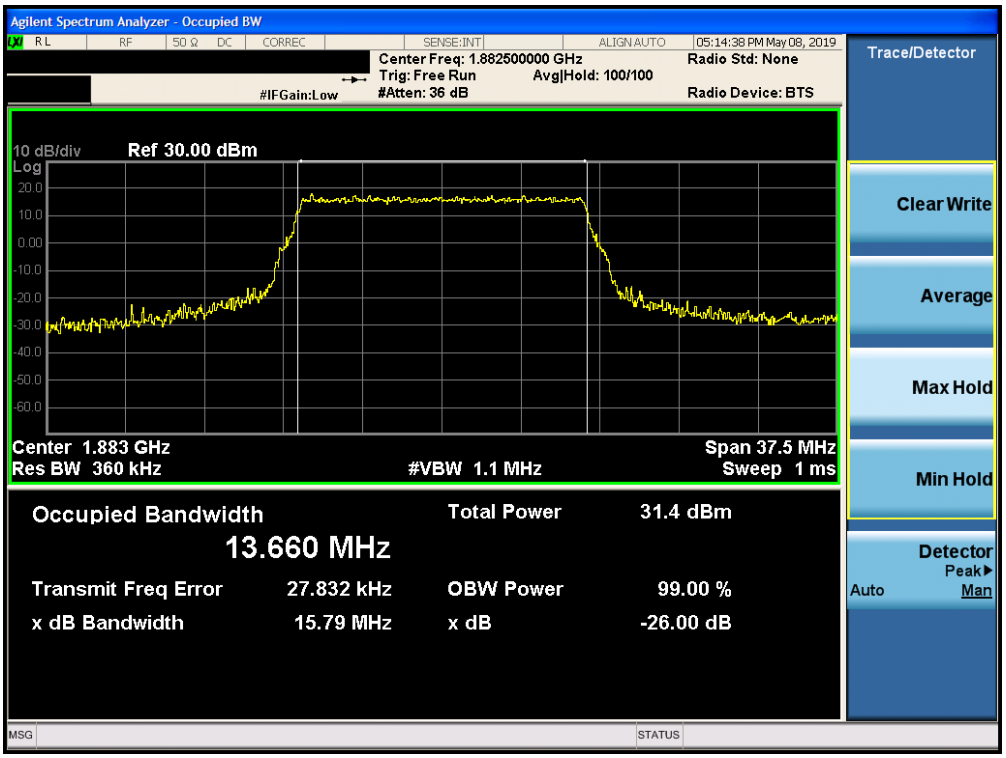


Plot 7-26. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

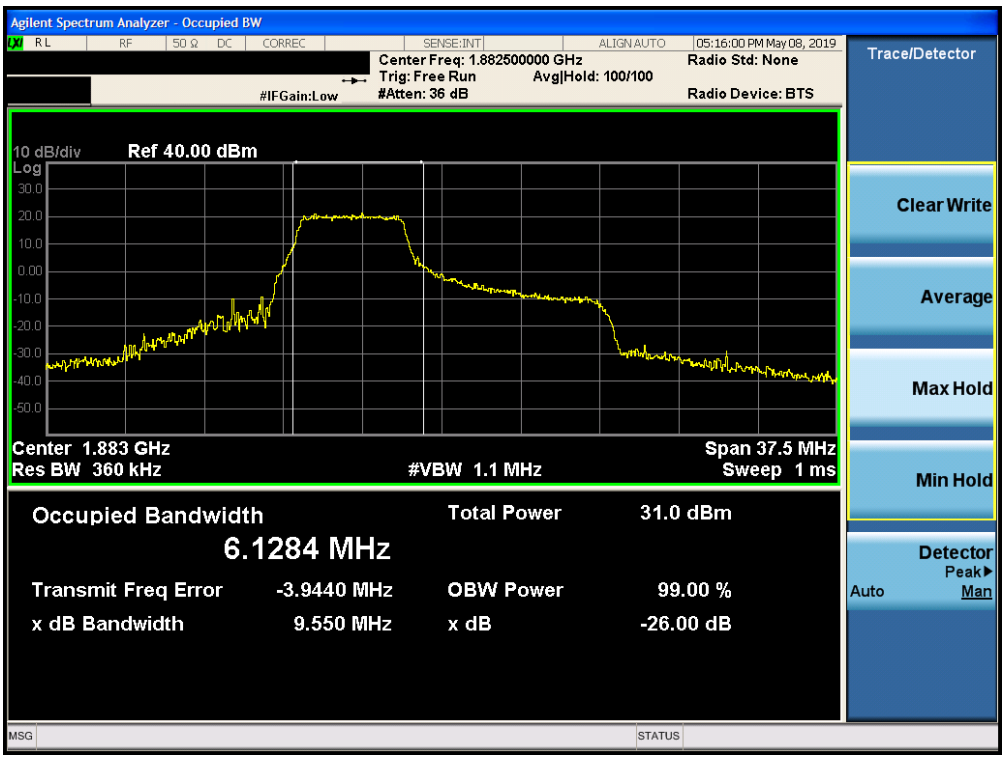


Plot 7-27. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

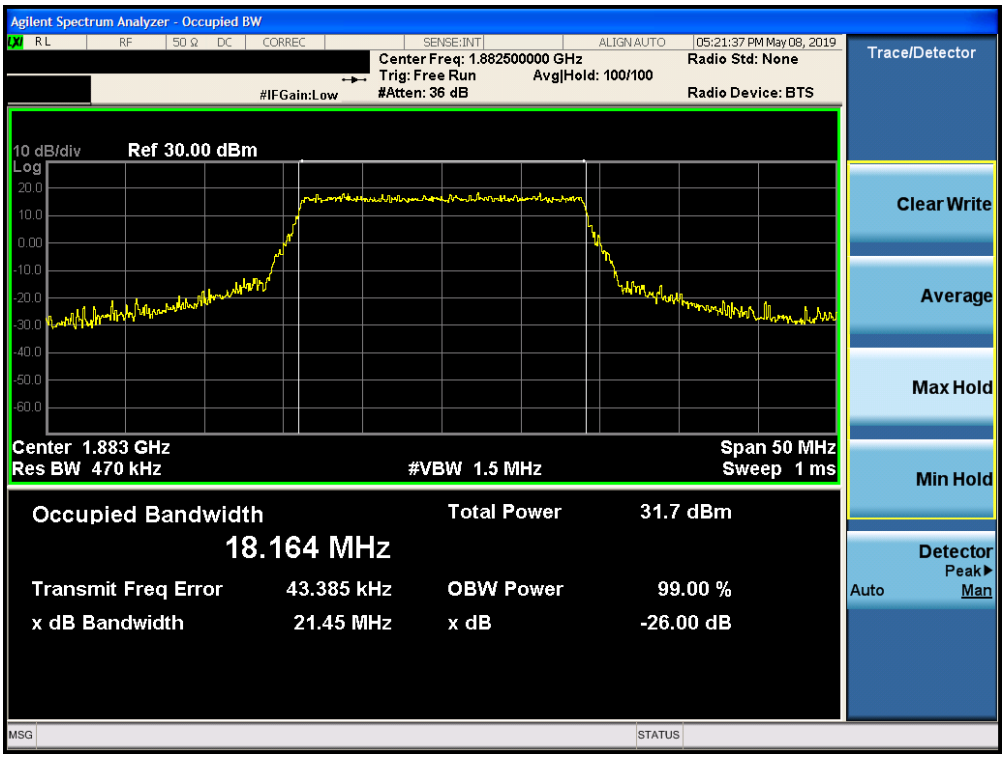
Plot 7-28. Occupied Bandwidth Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB (27/0) Configuration)



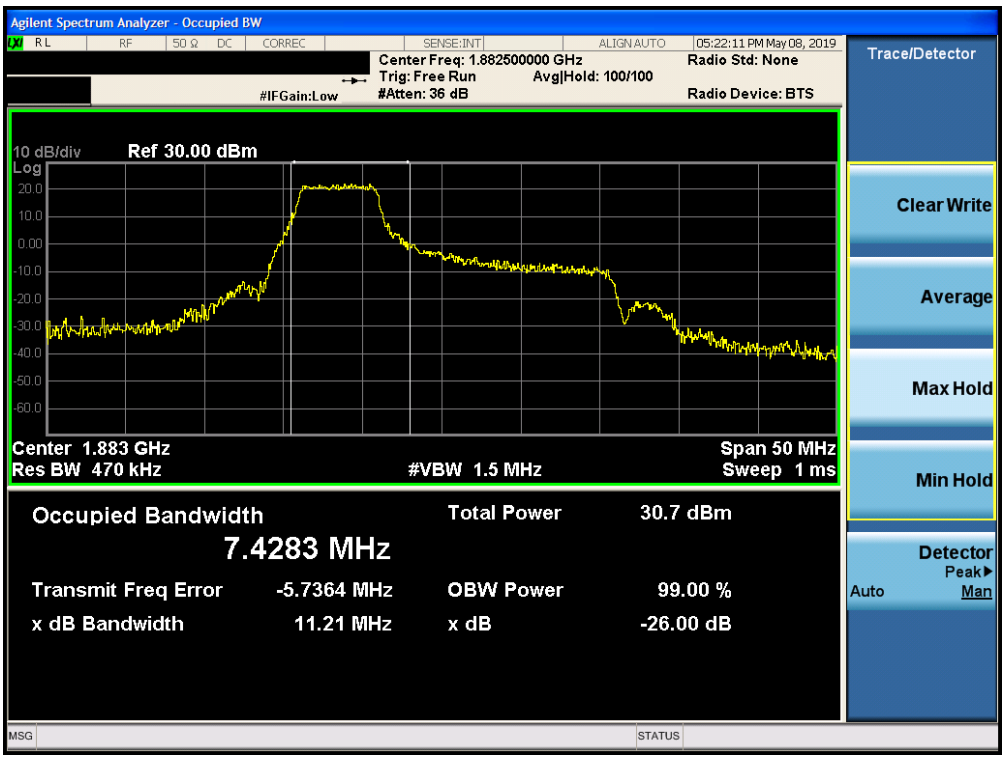
Plot 7-29. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-30. Occupied Bandwidth Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB (27/0) Configuration)

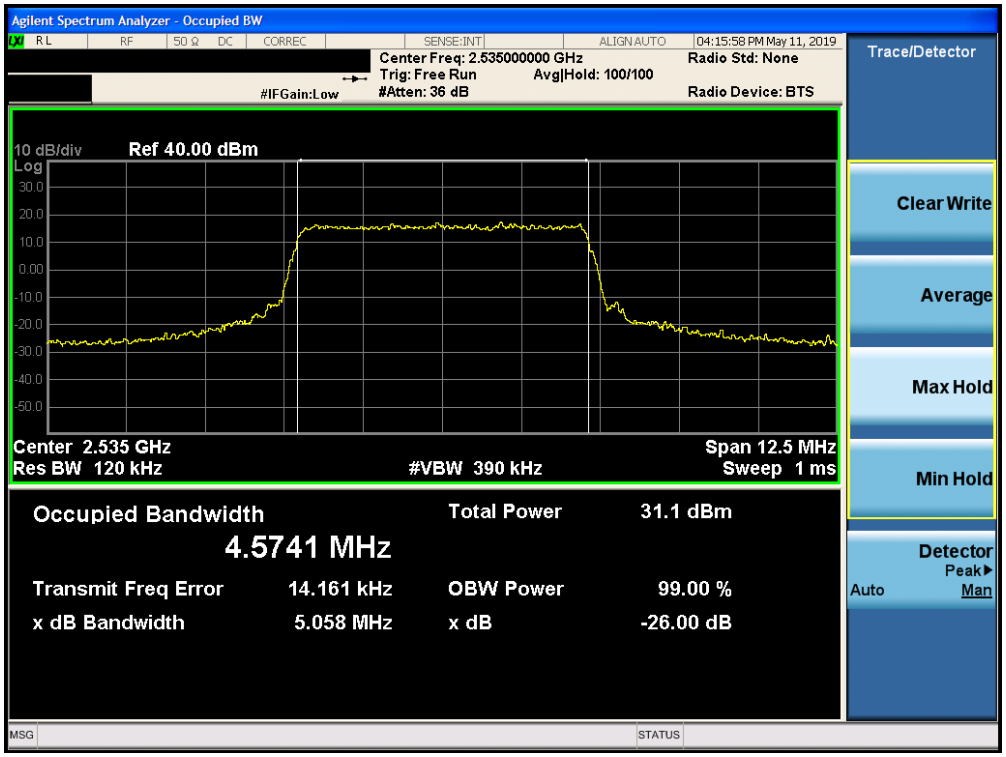


Plot 7-31. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

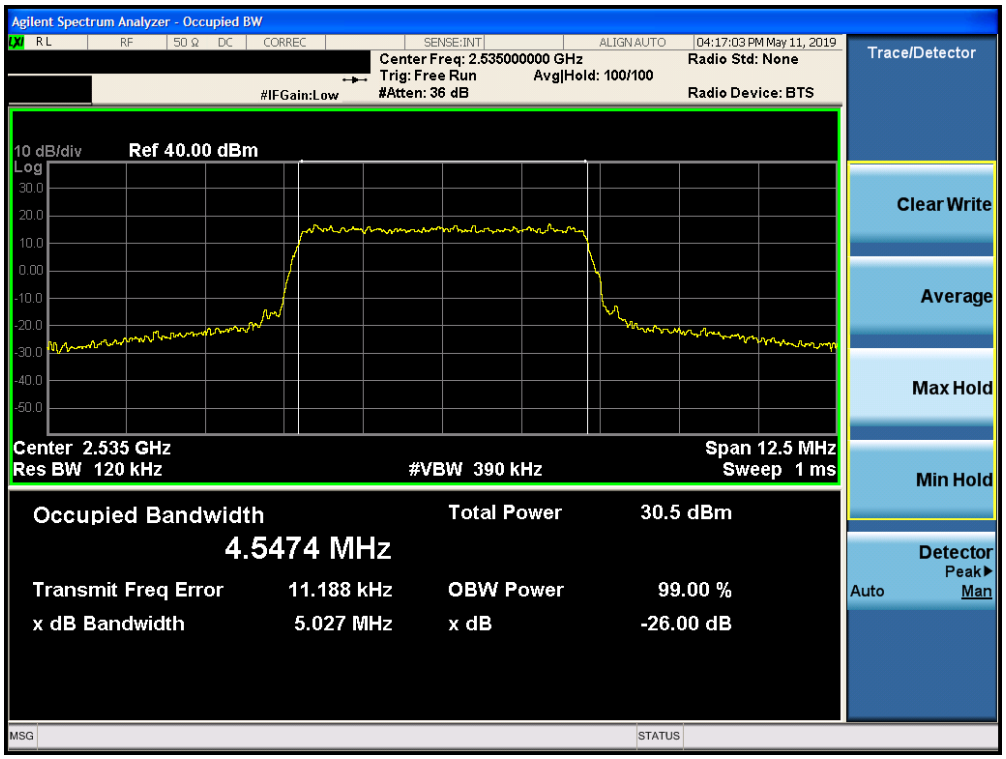


Plot 7-32. Occupied Bandwidth Plot (Band 25/2 - 20.0MHz 16-QAM – Full RB (27/0) Configuration)

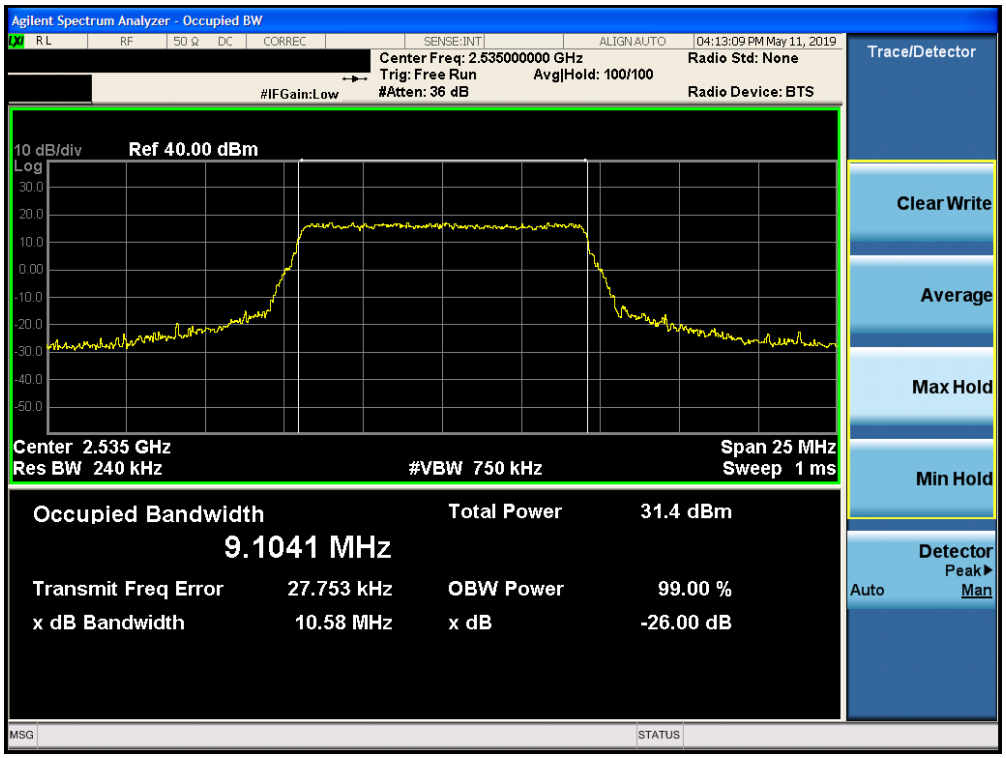
Band 7



Plot 7-33. Occupied Bandwidth Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

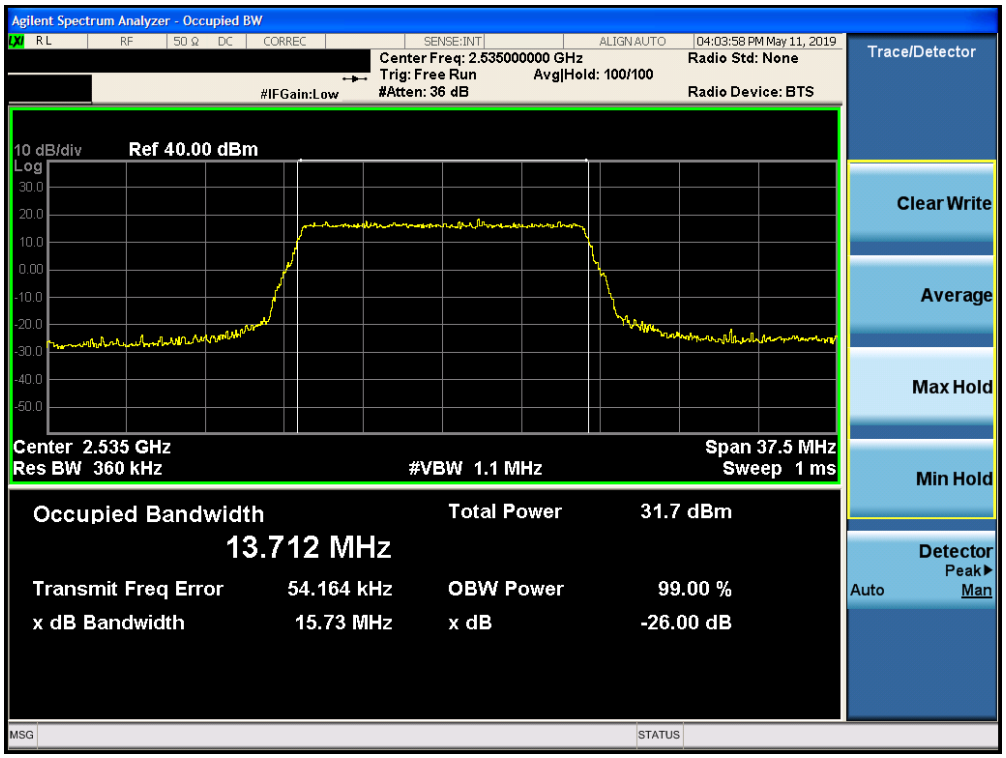


Plot 7-34. Occupied Bandwidth Plot (Band 7 - 5.0MHz 16-QAM - Full RB Configuration)

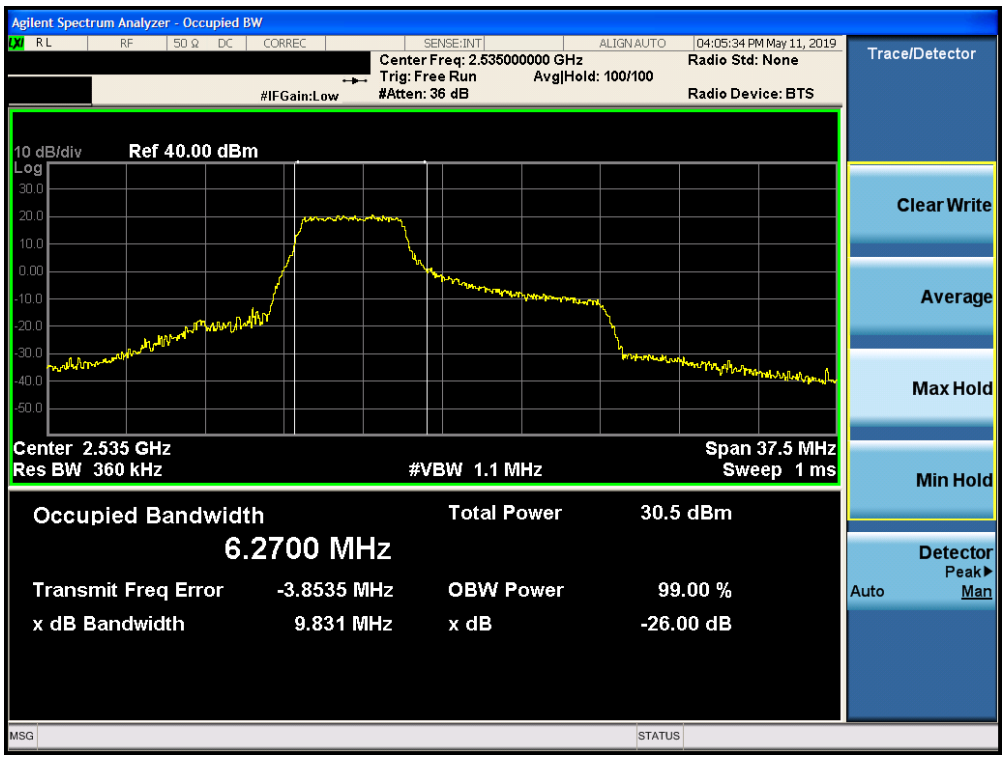


Plot 7-35. Occupied Bandwidth Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

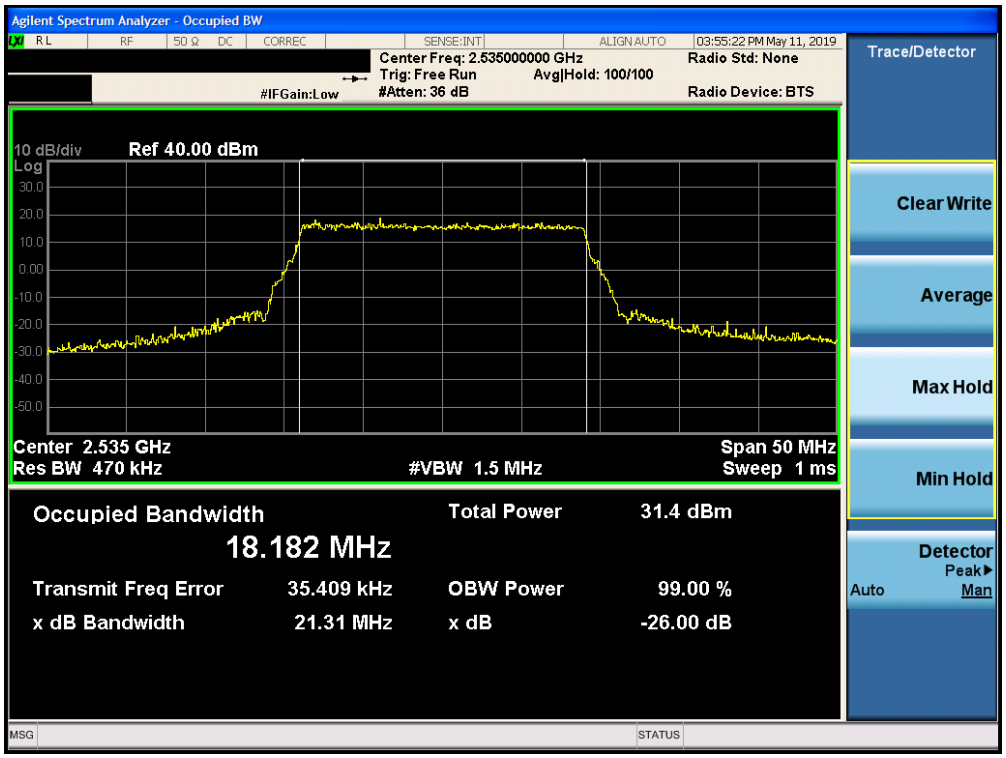
Plot 7-36. Occupied Bandwidth Plot (Band 7 - 10.0MHz 16-QAM – Full RB (27/0) Configuration)



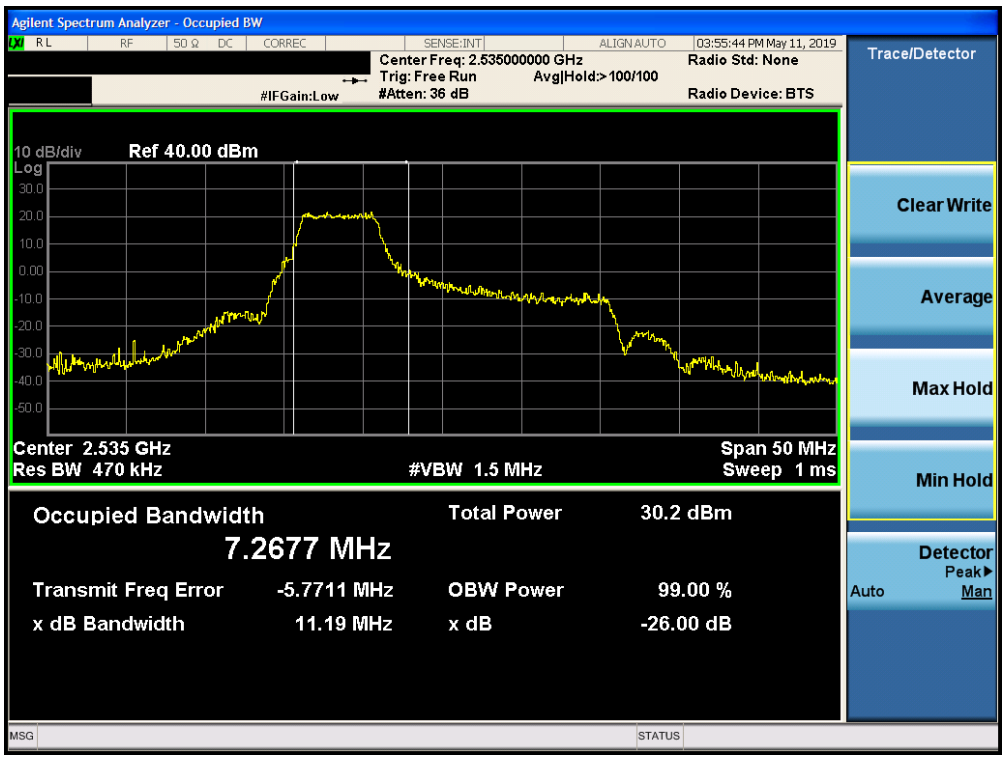
Plot 7-37. Occupied Bandwidth Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-38. Occupied Bandwidth Plot (Band 7 - 15.0MHz 16-QAM – Full RB (27/0) Configuration)

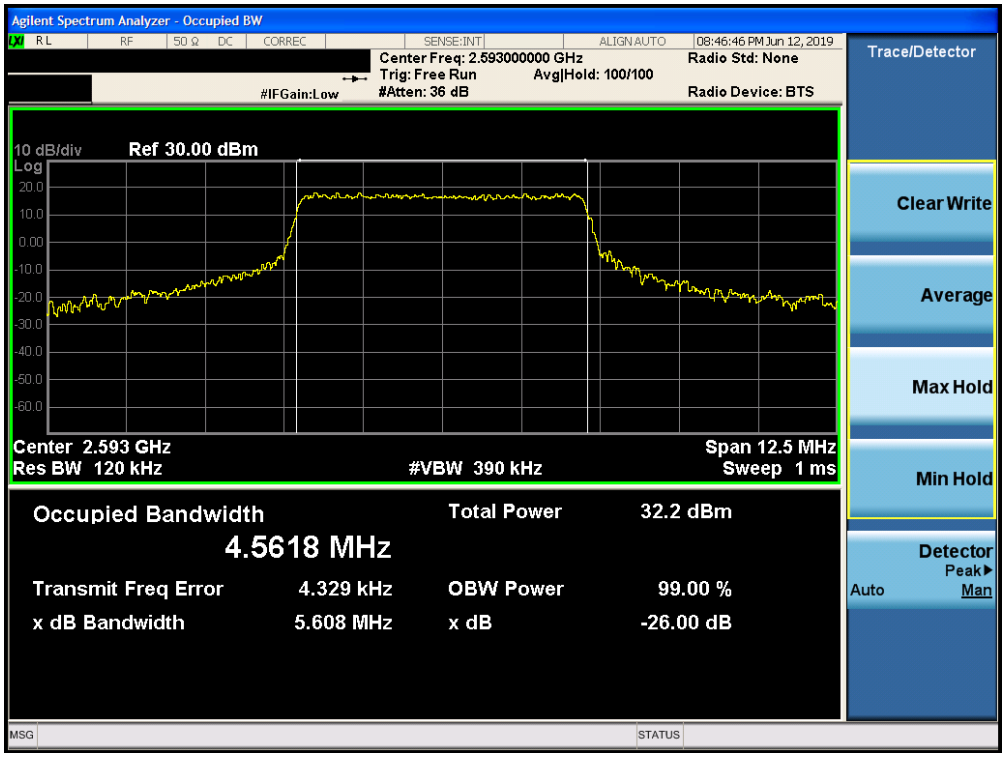


Plot 7-39. Occupied Bandwidth Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

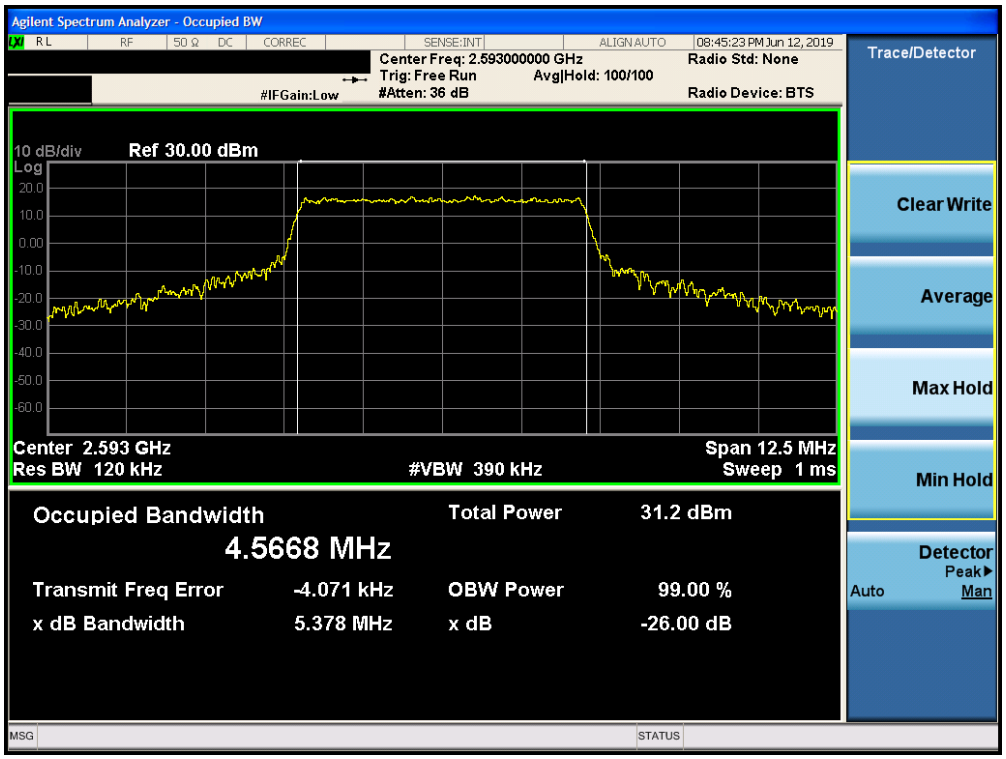


Plot 7-40. Occupied Bandwidth Plot (Band 7 - 20.0MHz 16-QAM – Full RB (27/0) Configuration)

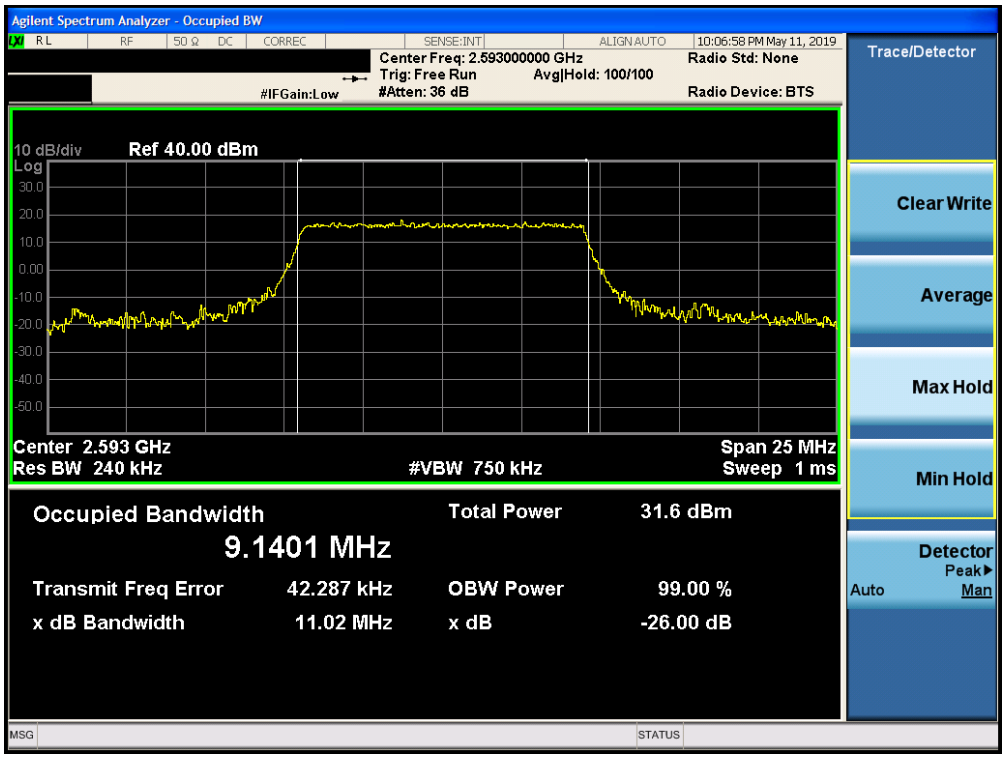
Band 41



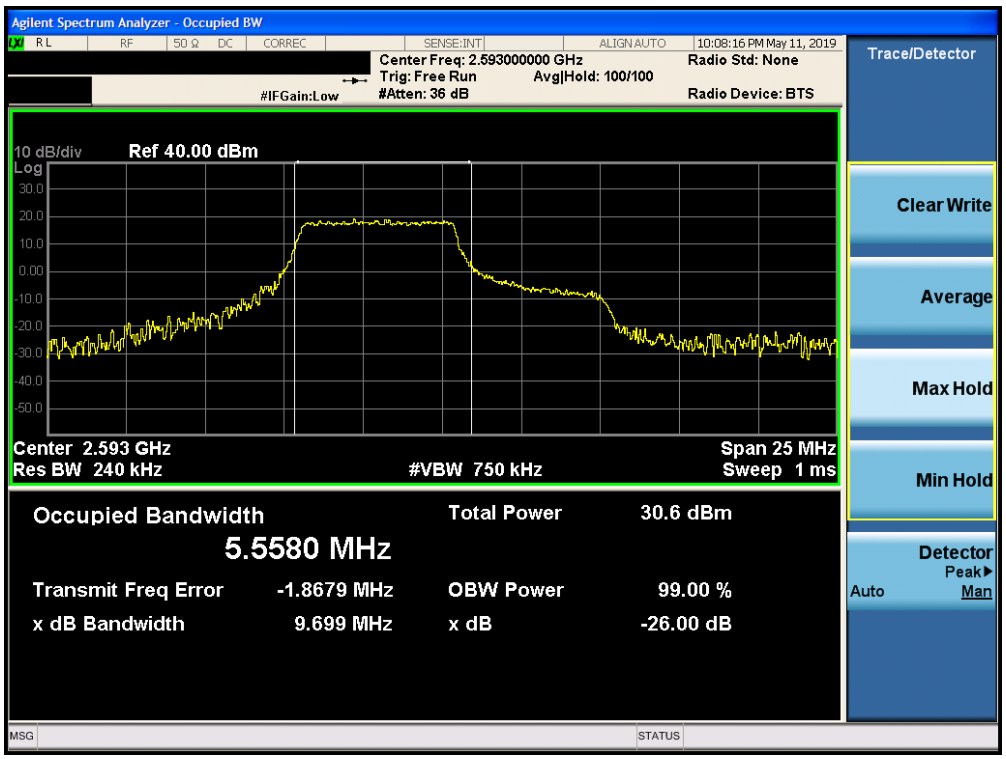
Plot 7-41. Occupied Bandwidth Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)



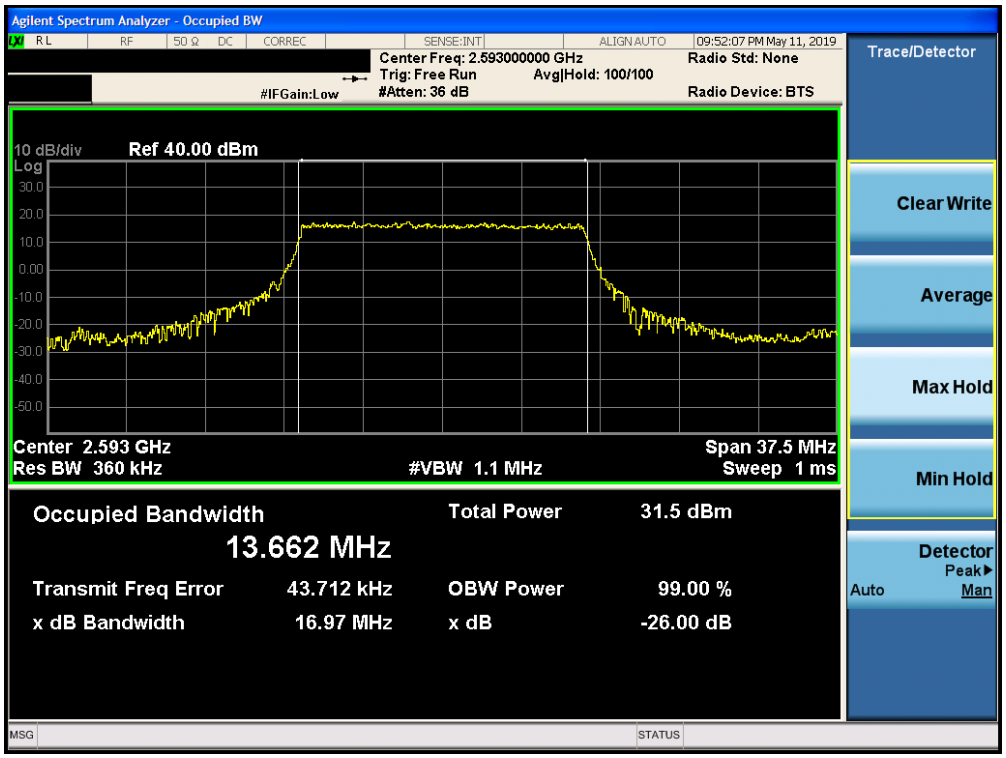
Plot 7-42. Occupied Bandwidth Plot (Band 41 - 5.0MHz 16-QAM - Full RB Configuration)



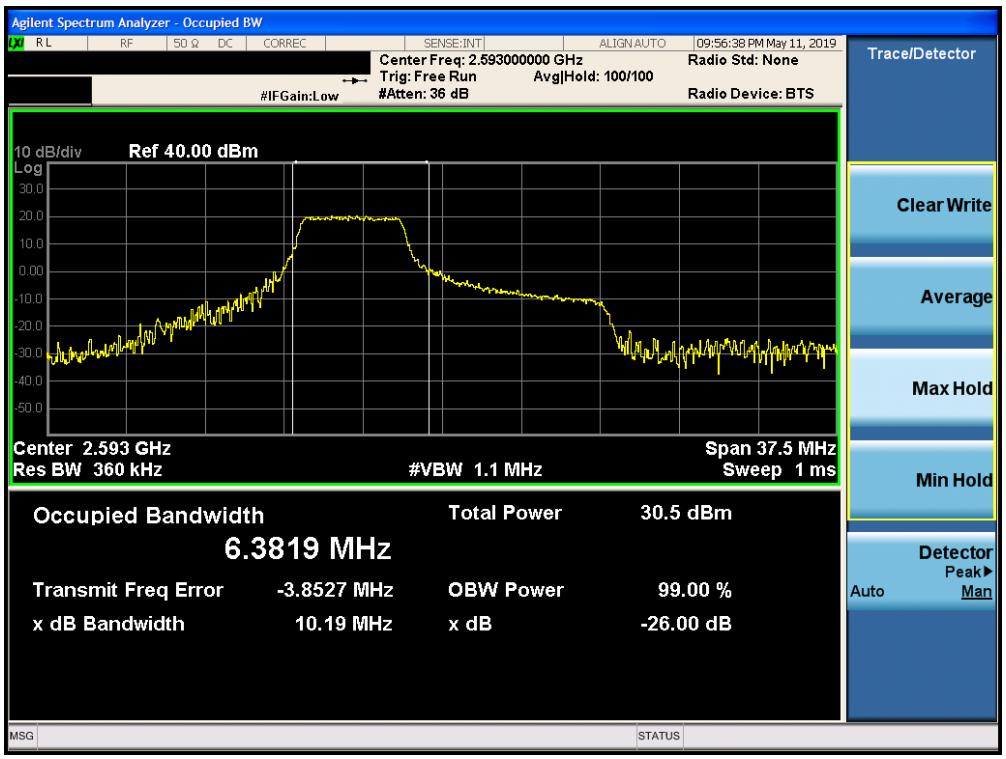
Plot 7-43. Occupied Bandwidth Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)



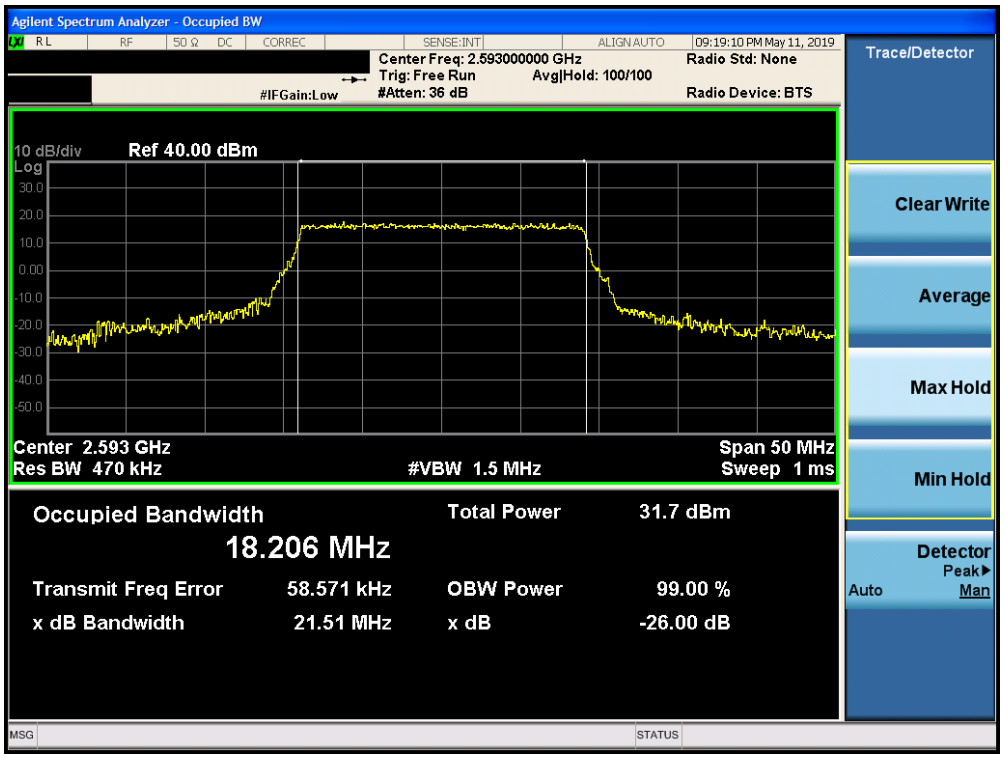
Plot 7-44. Occupied Bandwidth Plot (Band 41 - 10.0MHz 16-QAM – Full RB (27/0) Configuration)



Plot 7-45. Occupied Bandwidth Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-46. Occupied Bandwidth Plot (Band 41 - 15.0MHz 16-QAM – Full RB (27/0) Configuration)



Plot 7-47. Occupied Bandwidth Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

Plot 7-48. Occupied Bandwidth Plot (Band 41 - 20.0MHz 16-QAM – Full RB (27/0) Configuration)

7.3 Spurious and Harmonic Emissions at Antenna Terminal

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 10th 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 minimum permissible attenuation level of any spurious emission is 43 + 10 $log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

For Band 7 and 41, the minimum permissible attenuation level of any spurious emission is 55 + 10 $log_{10}(P_{[Watts]})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

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. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. 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.

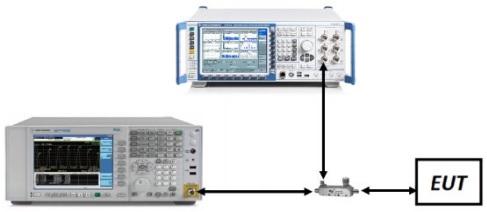
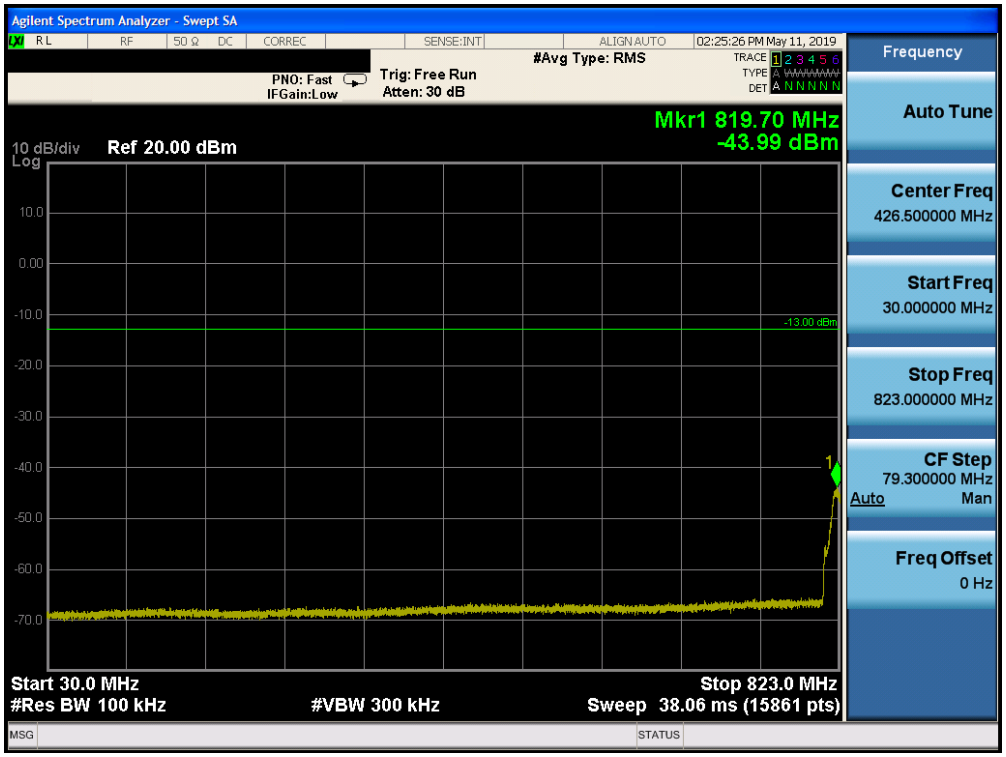


Figure 7-2. Test Instrument & Measurement Setup

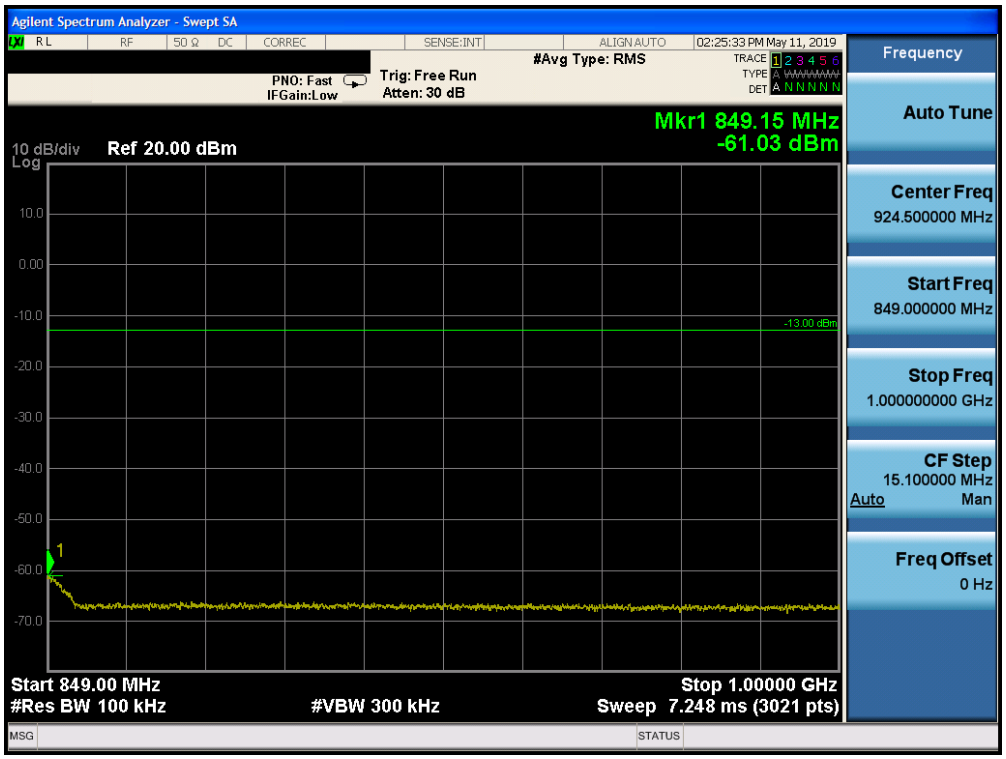
Test Notes

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. 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.

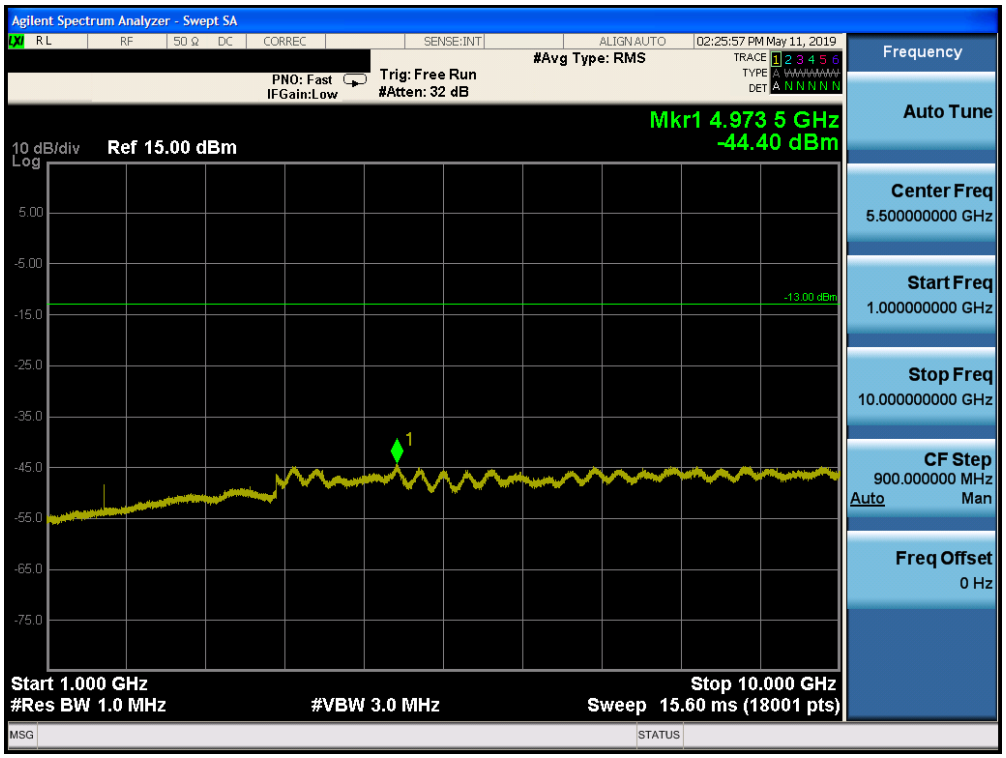
Band 26/5



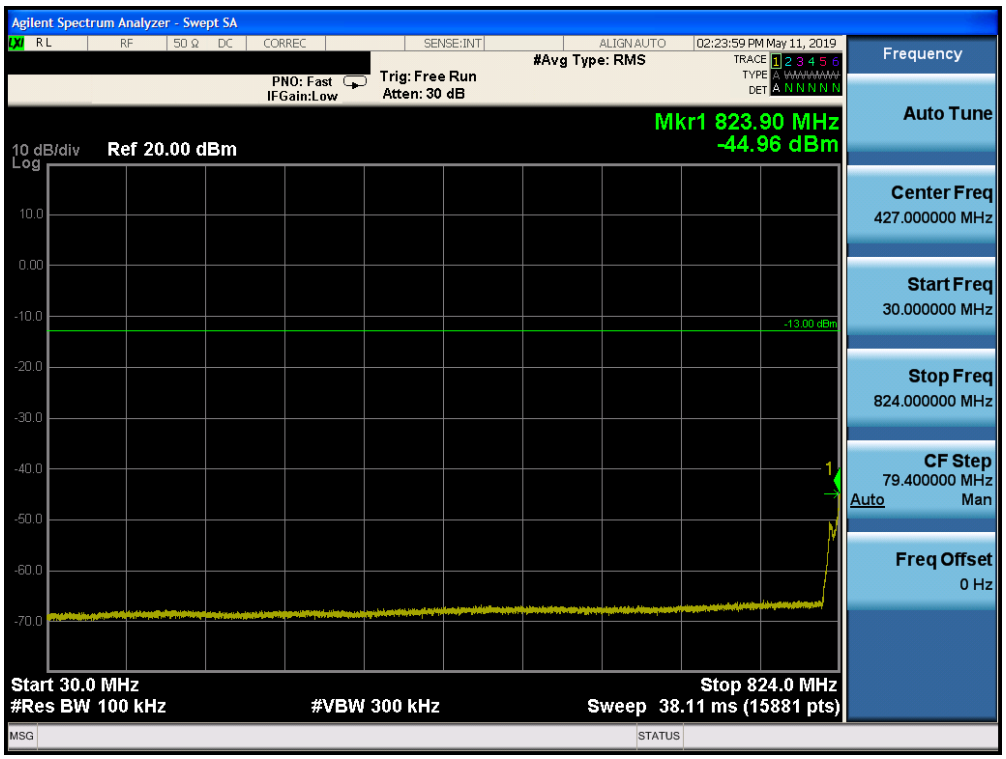
Plot 7-49. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



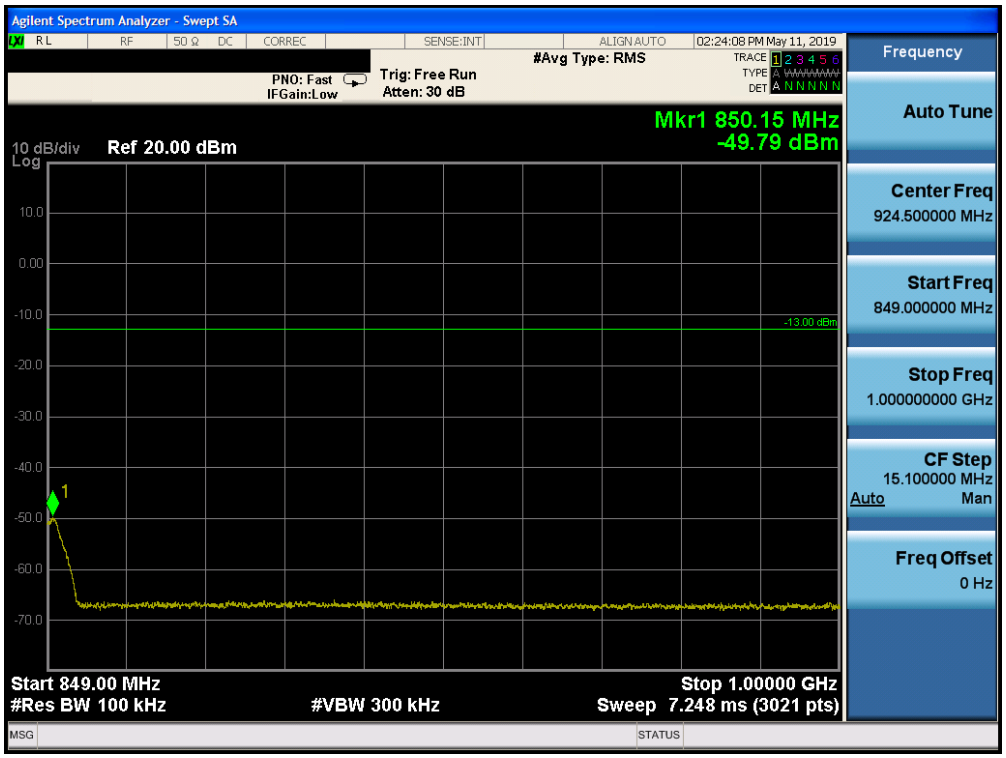
Plot 7-50. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



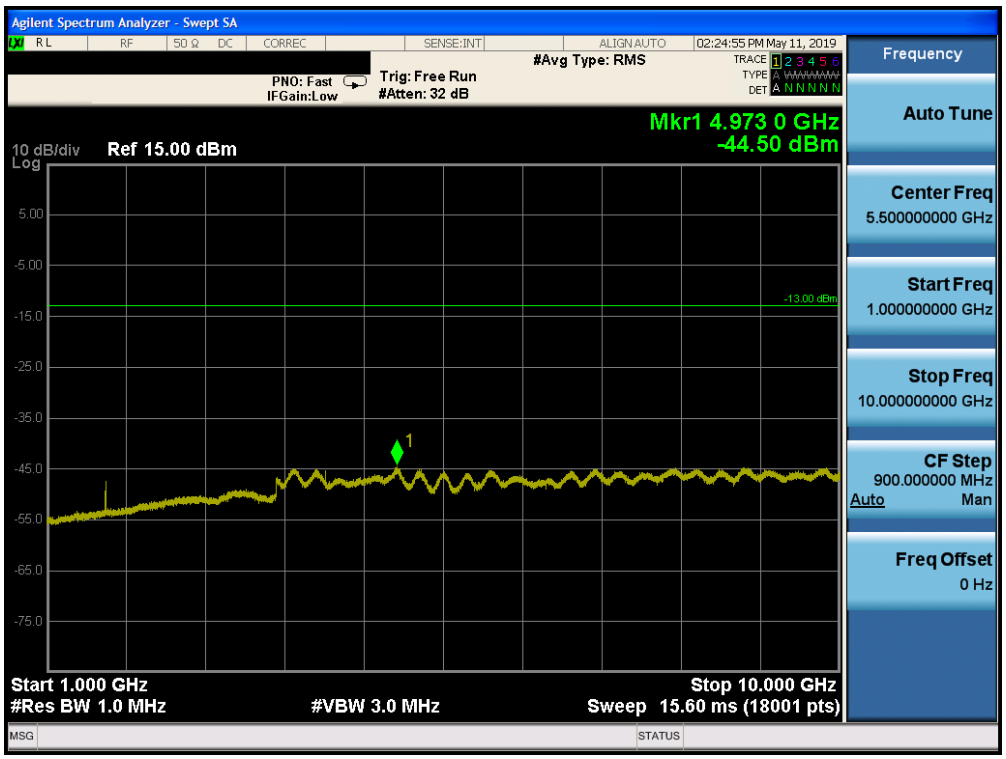
Plot 7-51. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



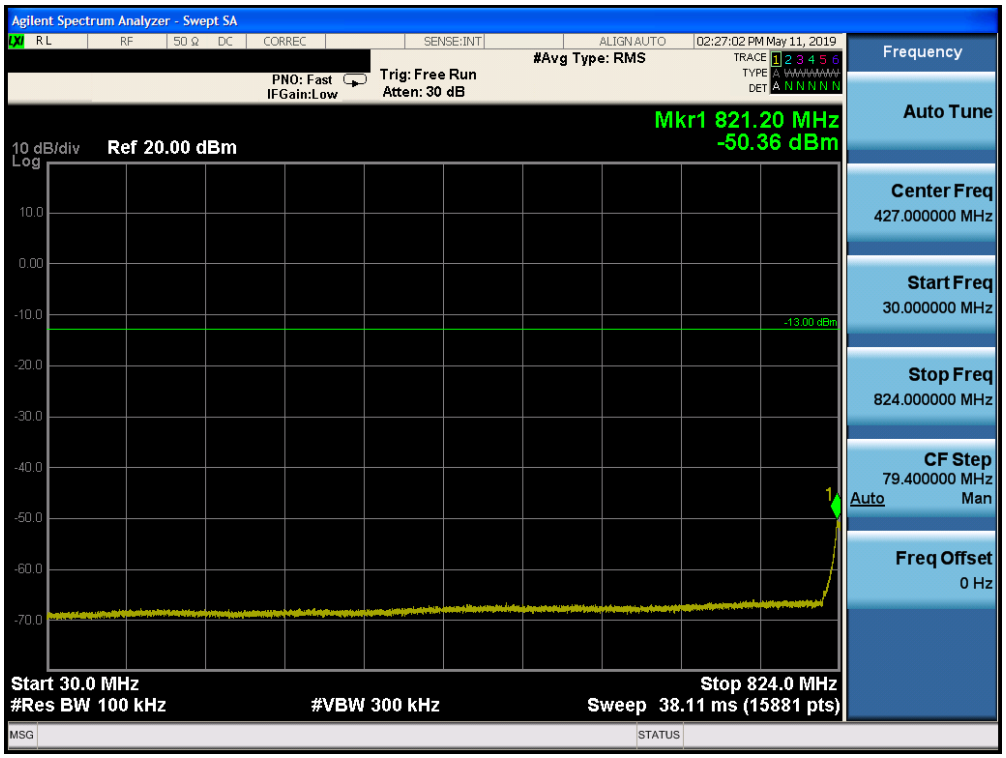
Plot 7-52. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



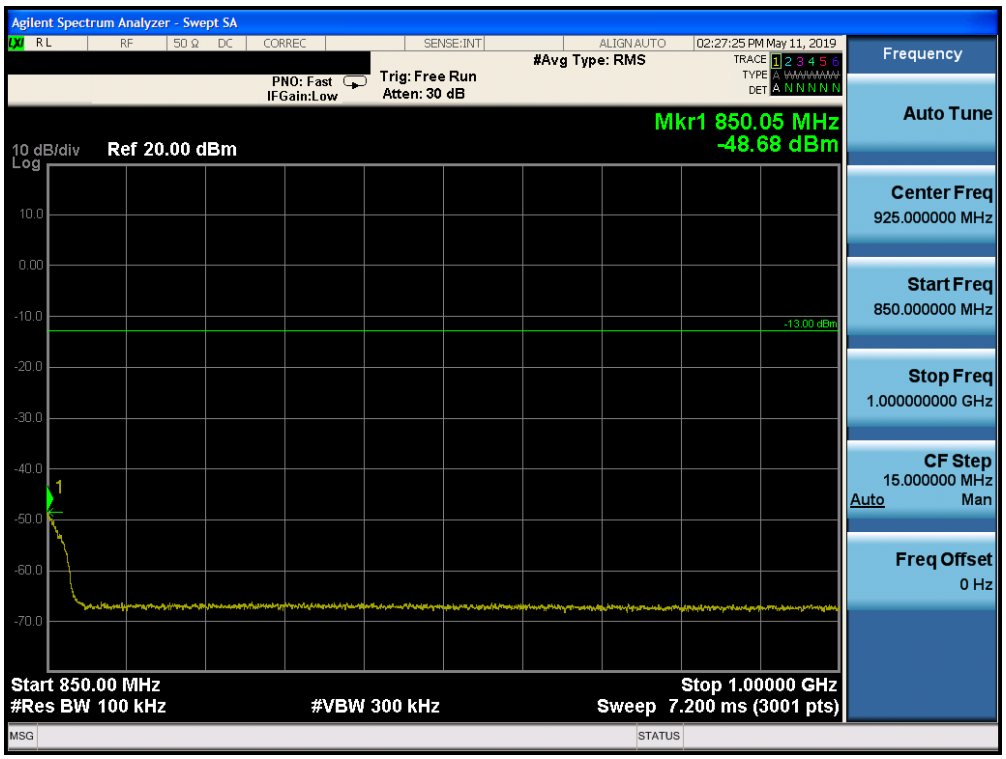
Plot 7-53. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



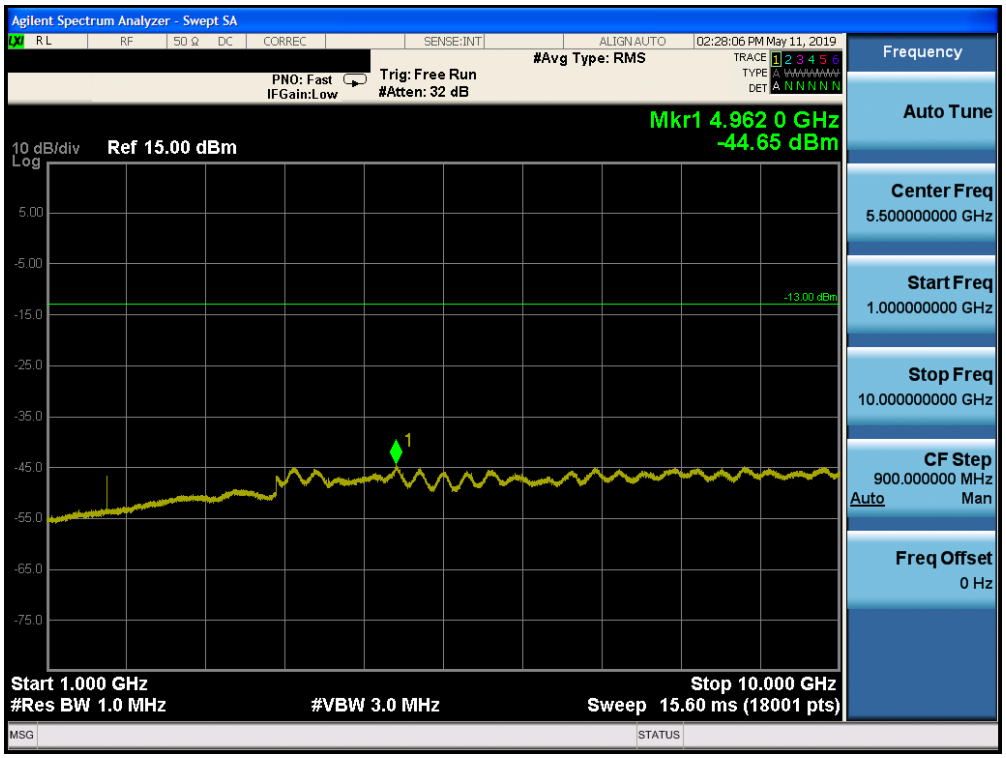
Plot 7-54. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-55. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

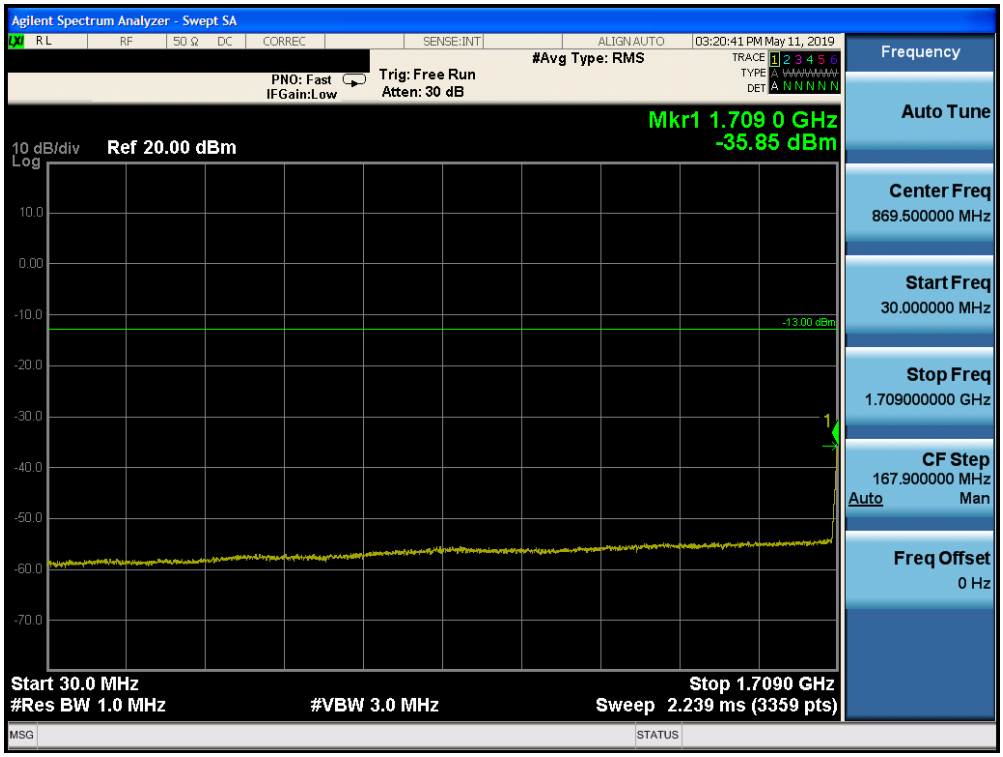


Plot 7-56. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

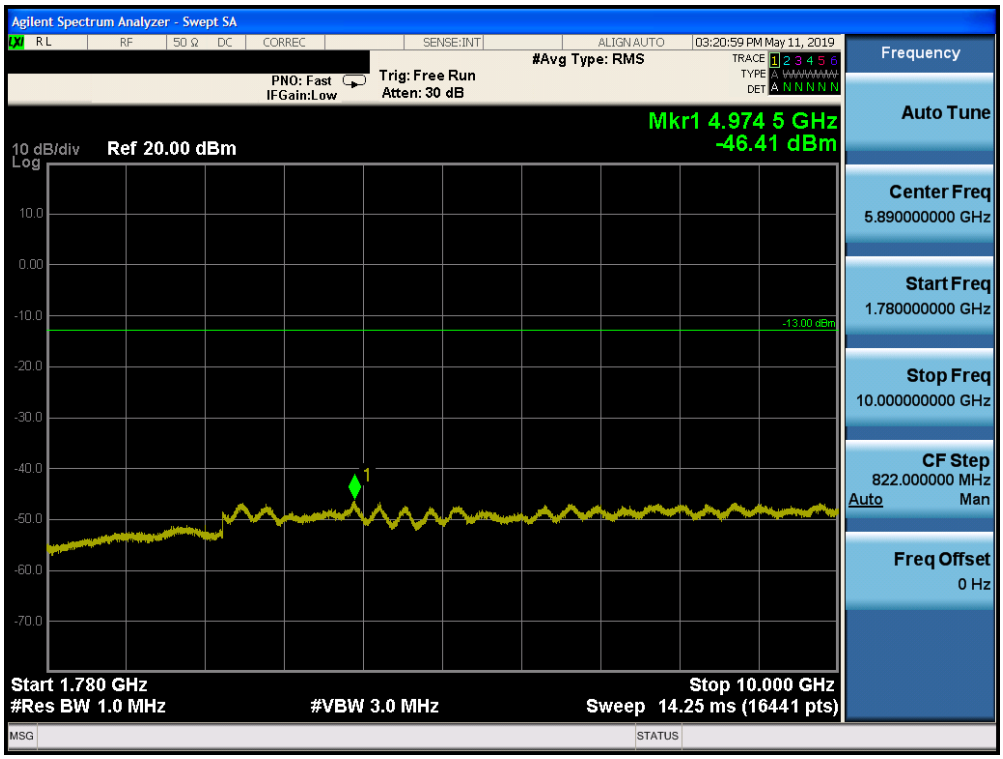


Plot 7-57. Conducted Spurious Plot (Band 26/5 - 10.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

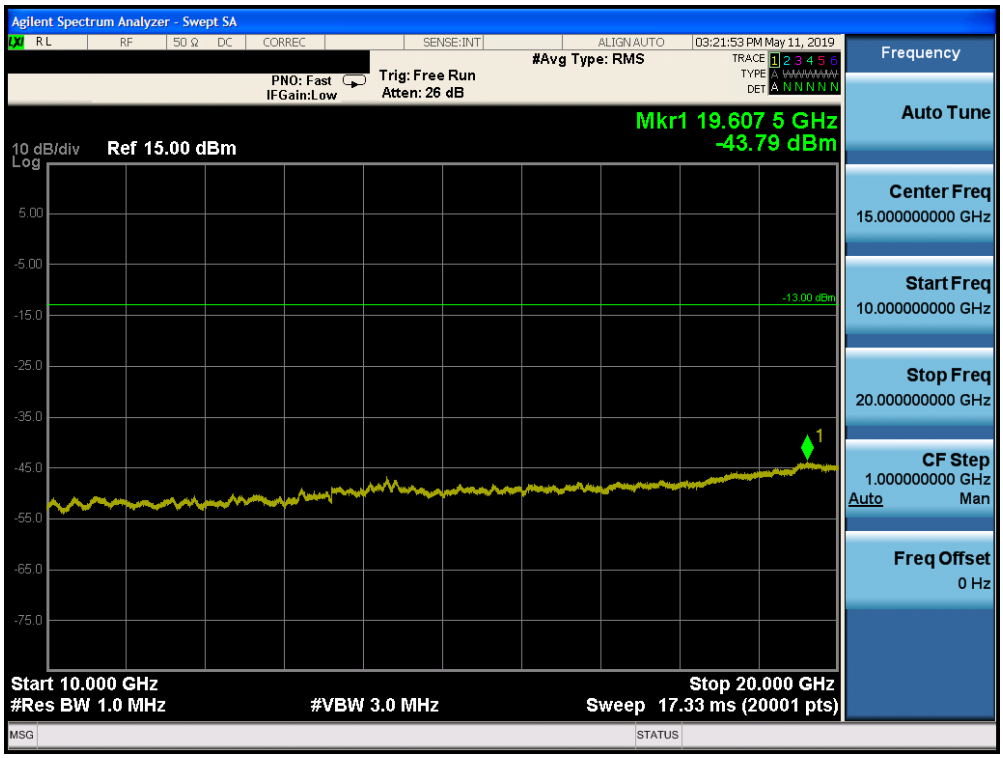
Band 66/4



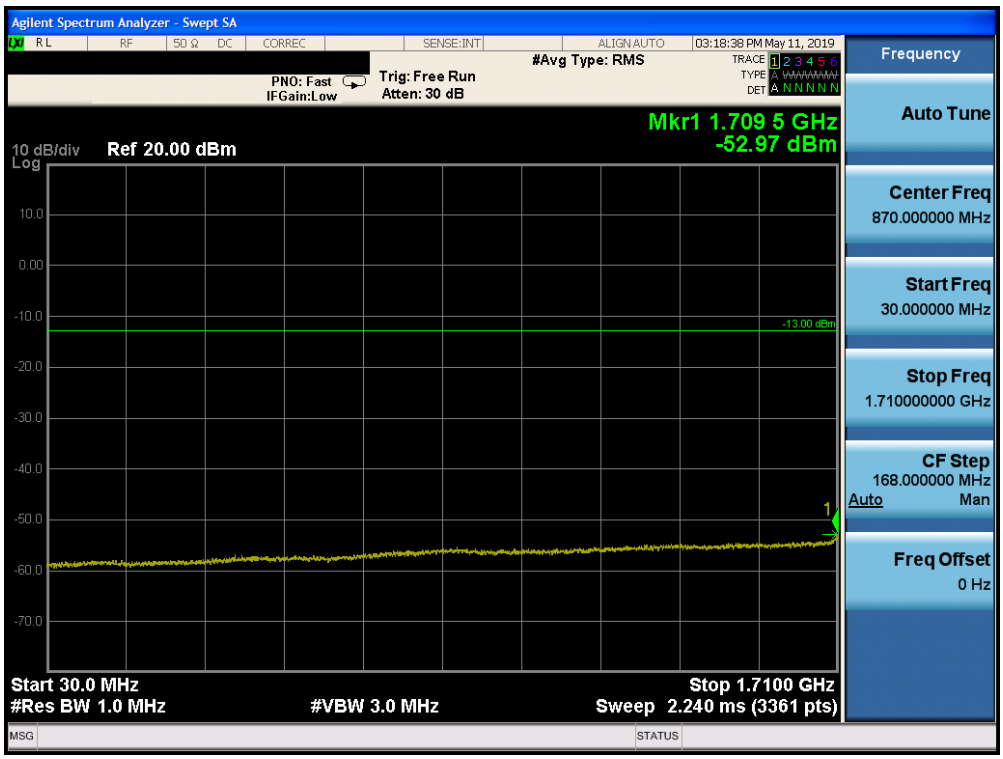
Plot 7-58. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



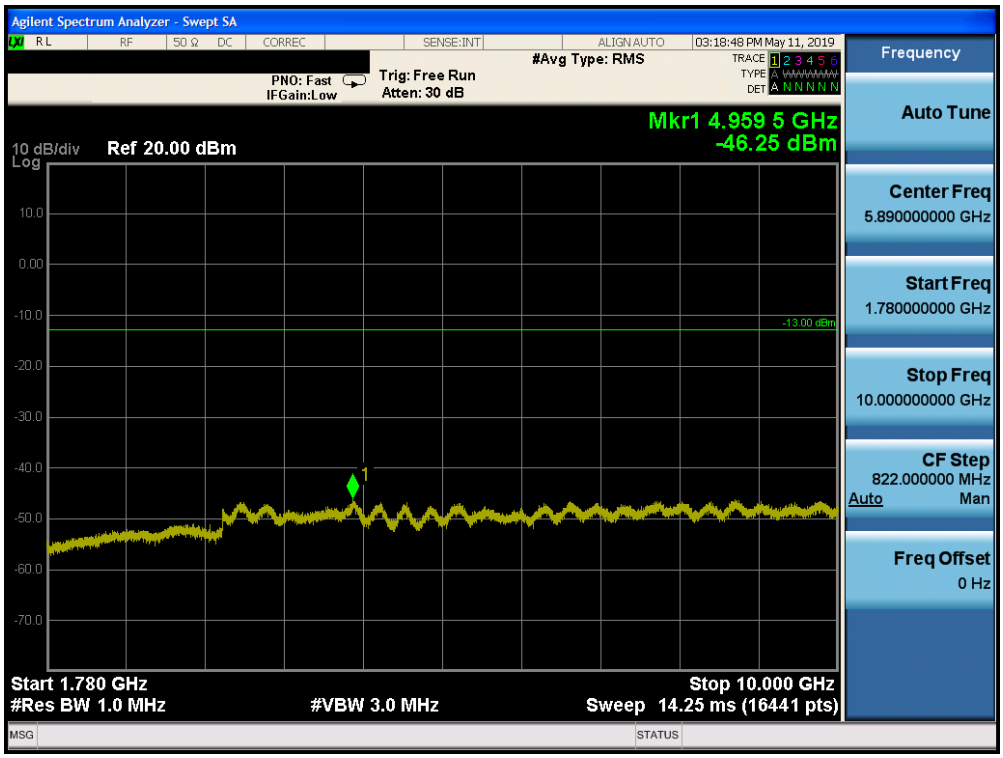
Plot 7-59. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



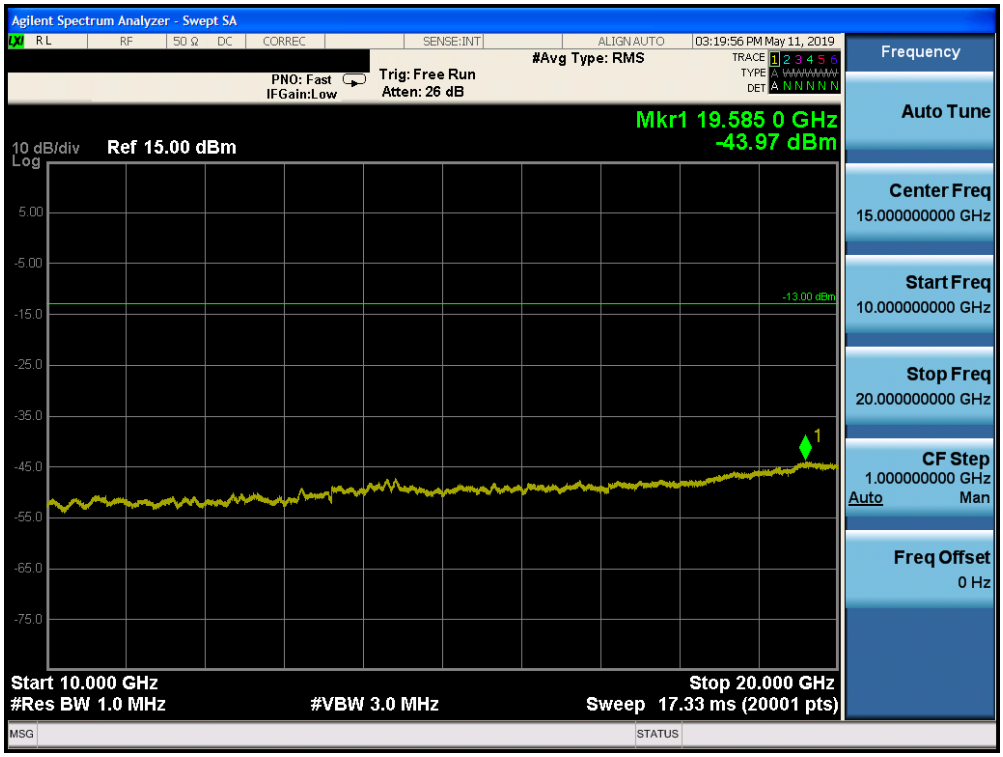
Plot 7-60. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



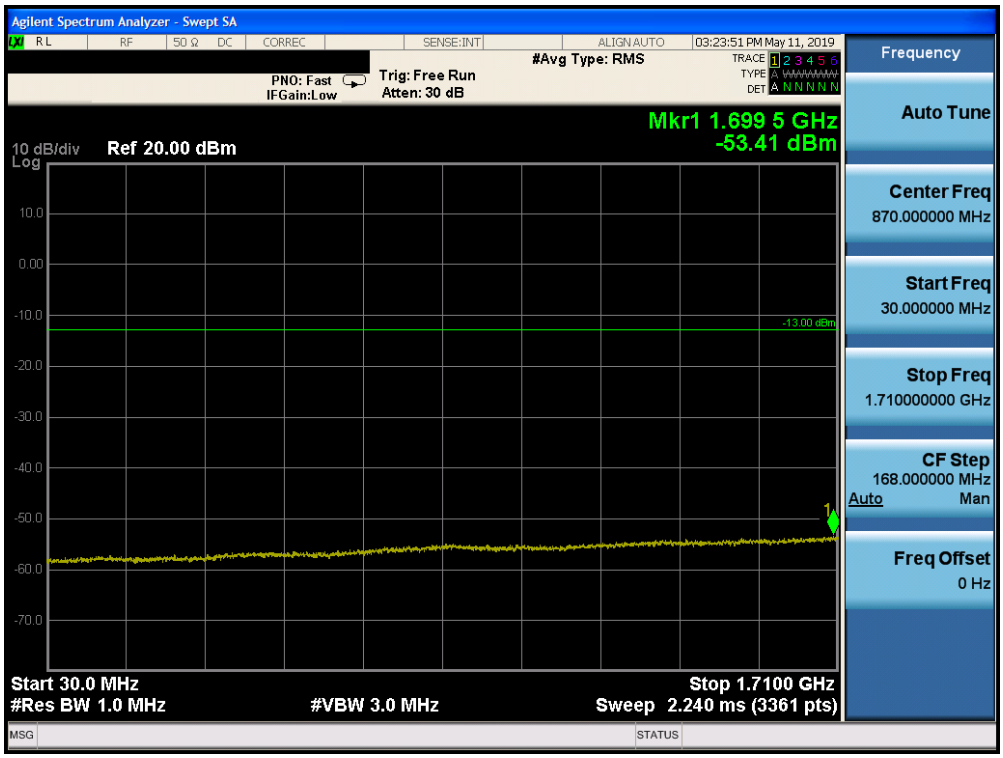
Plot 7-61. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



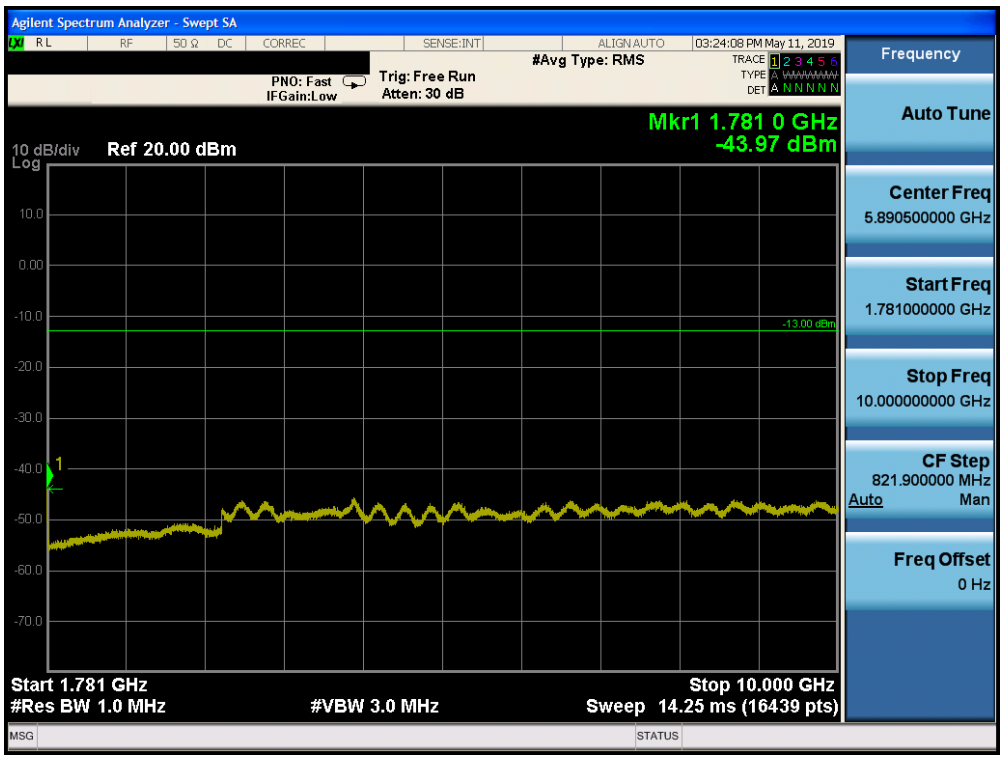
Plot 7-62. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



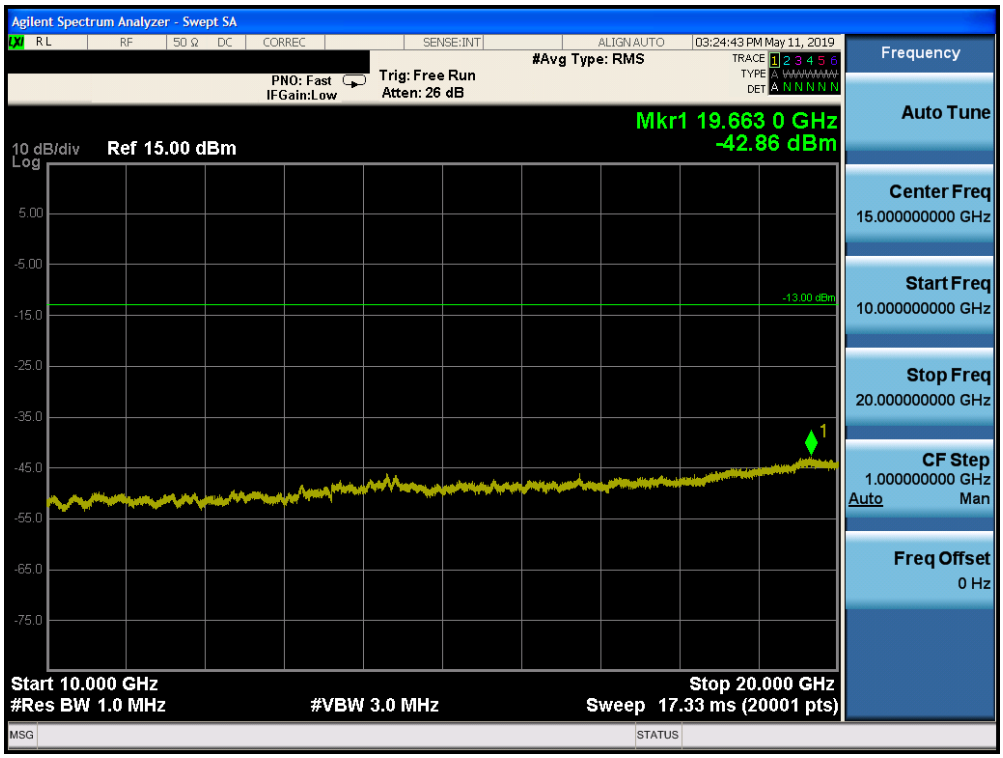
Plot 7-63. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-64. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

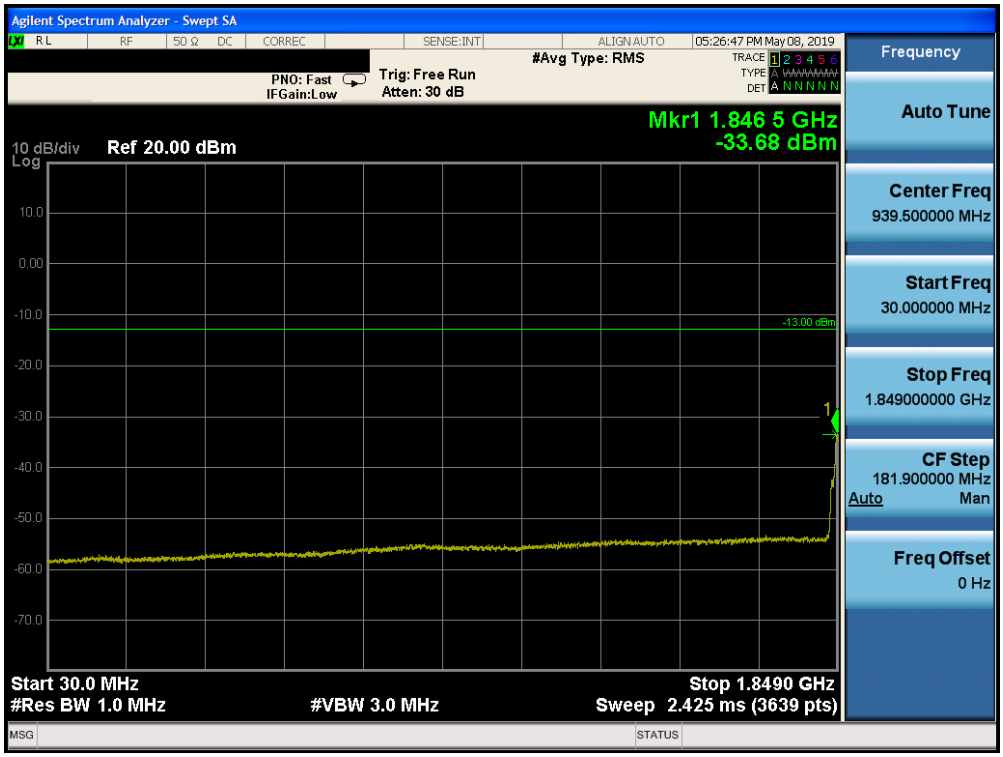


Plot 7-65. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

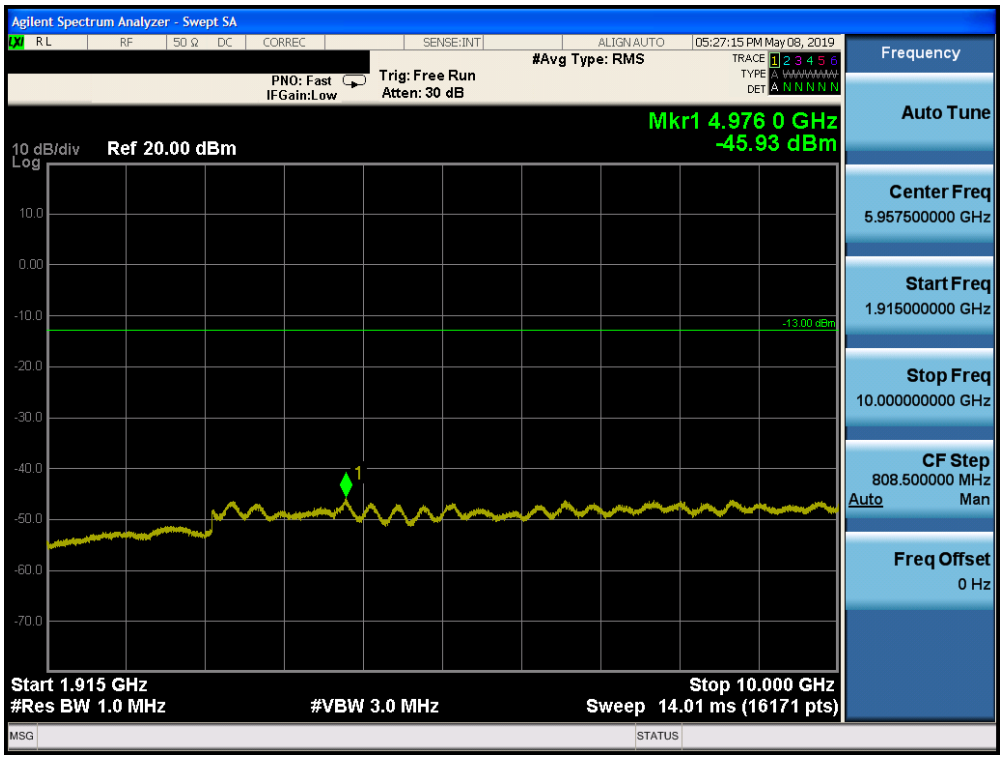


Plot 7-66. Conducted Spurious Plot (Band 66/4 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

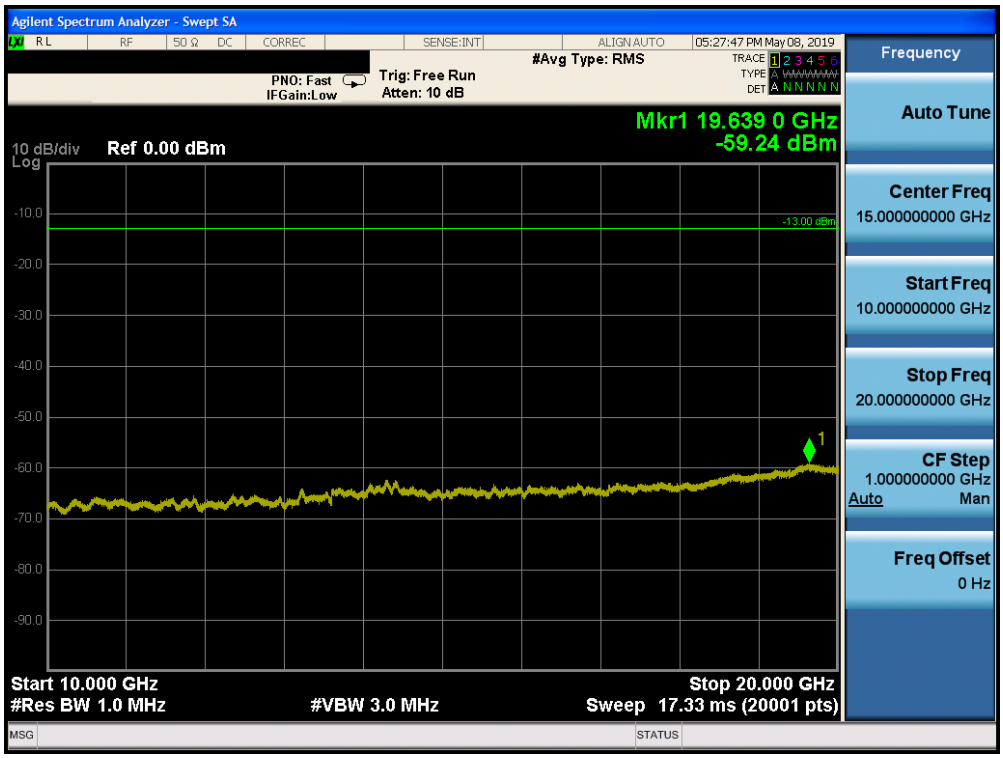
Band 25/2



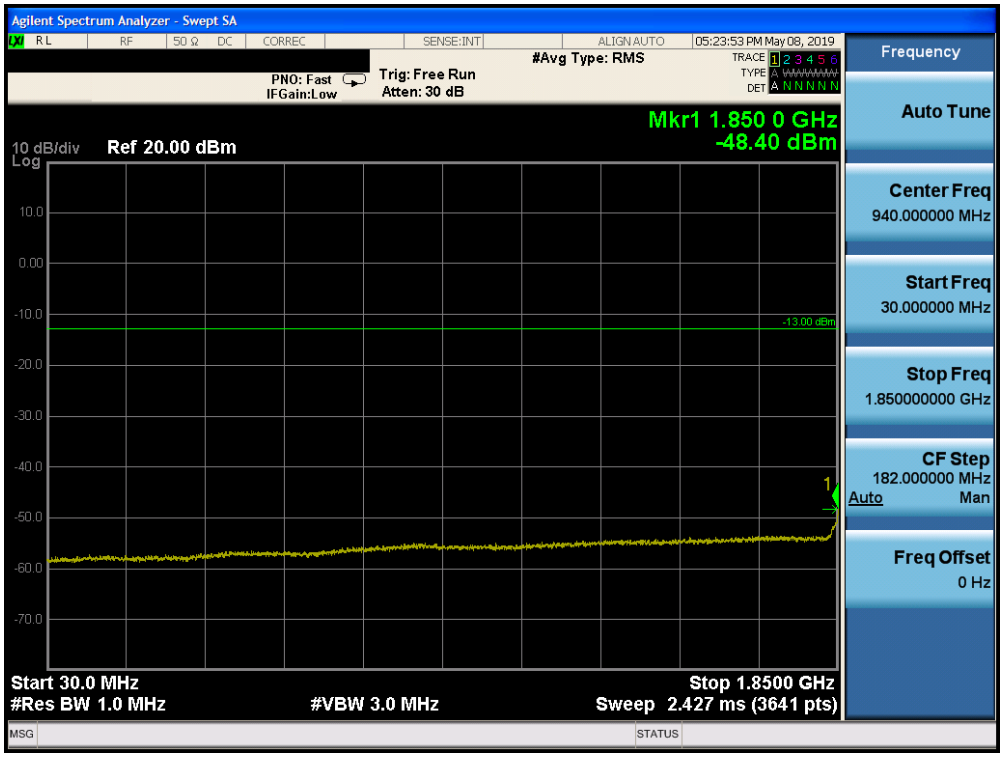
Plot 7-67. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



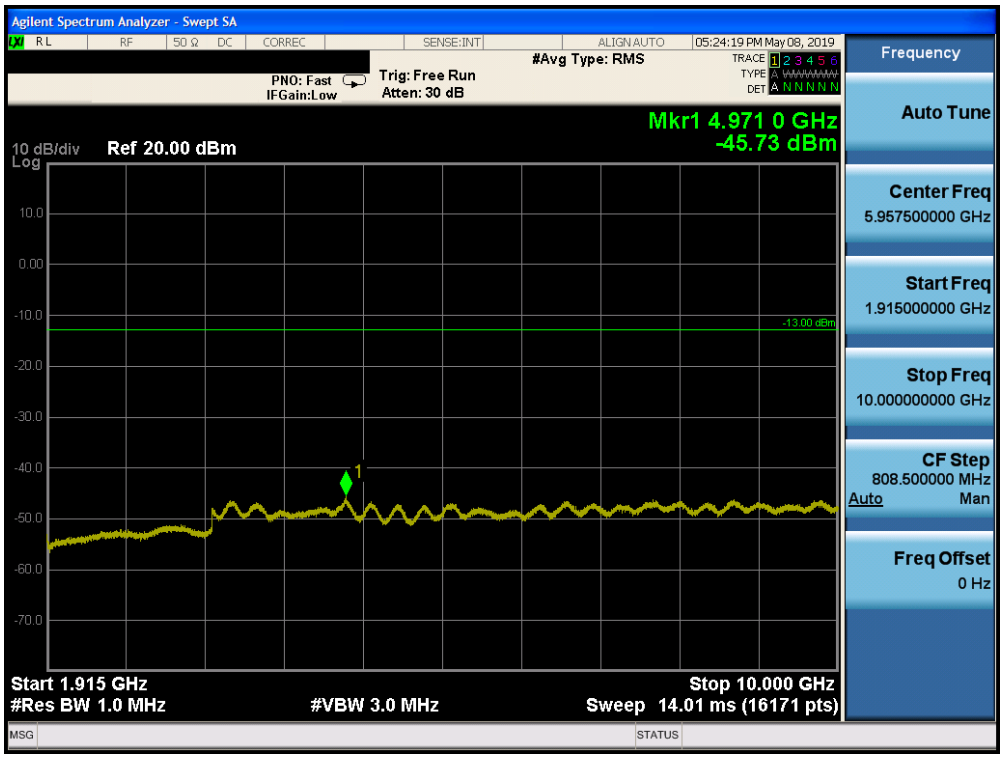
Plot 7-68. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



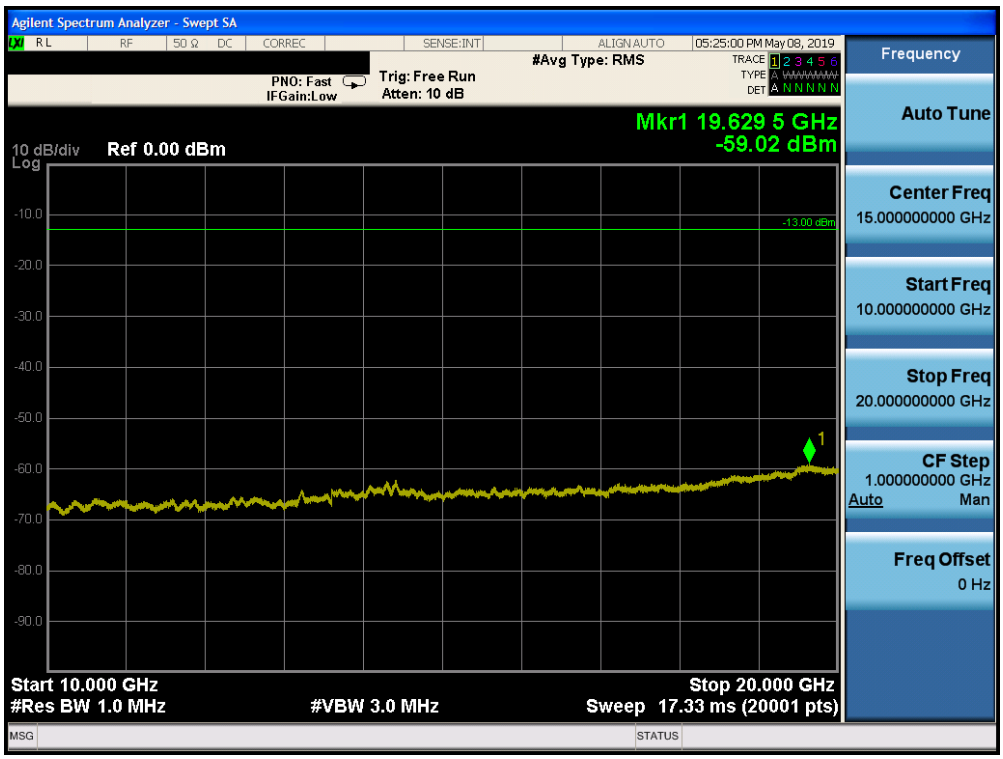
Plot 7-69. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



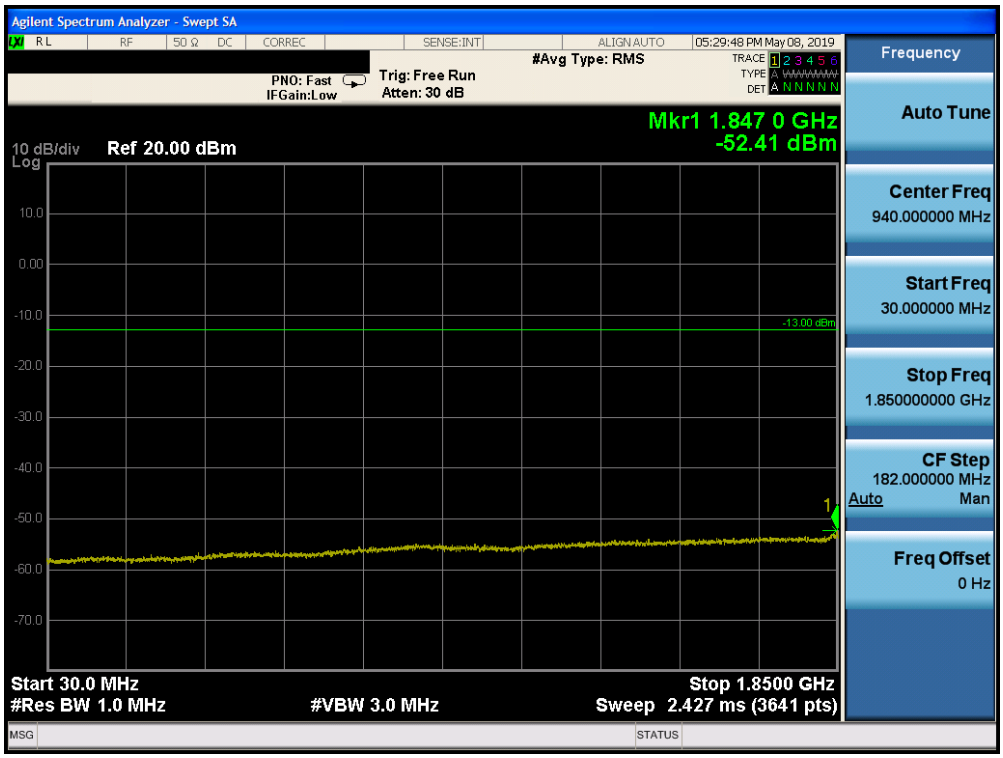
Plot 7-70. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



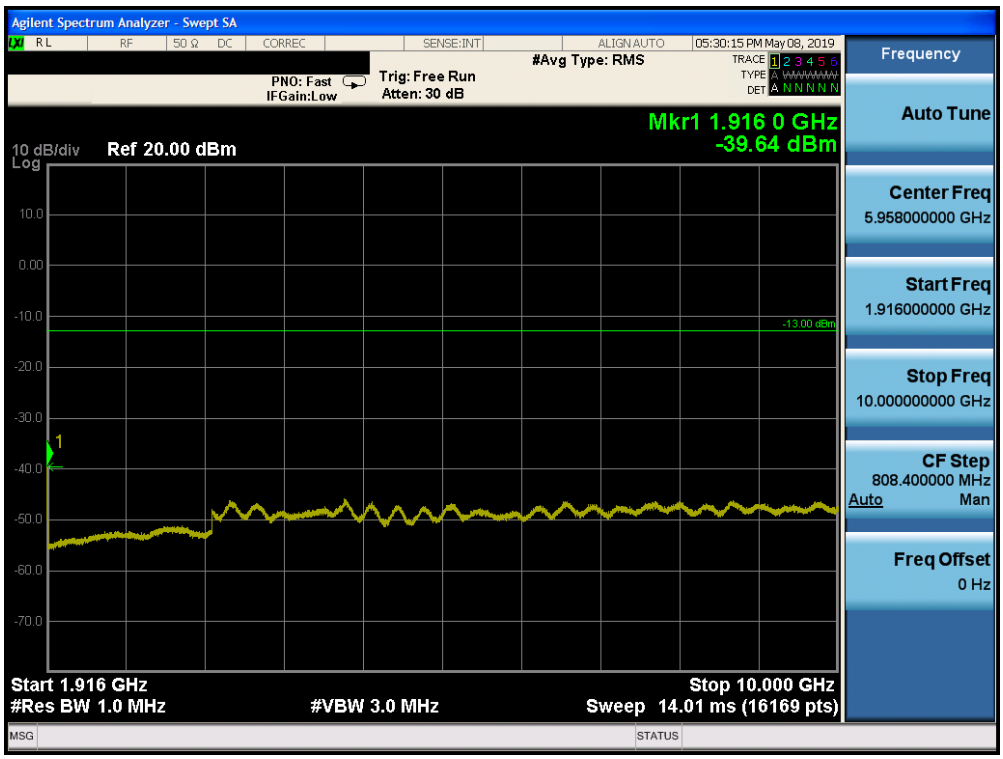
Plot 7-71. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



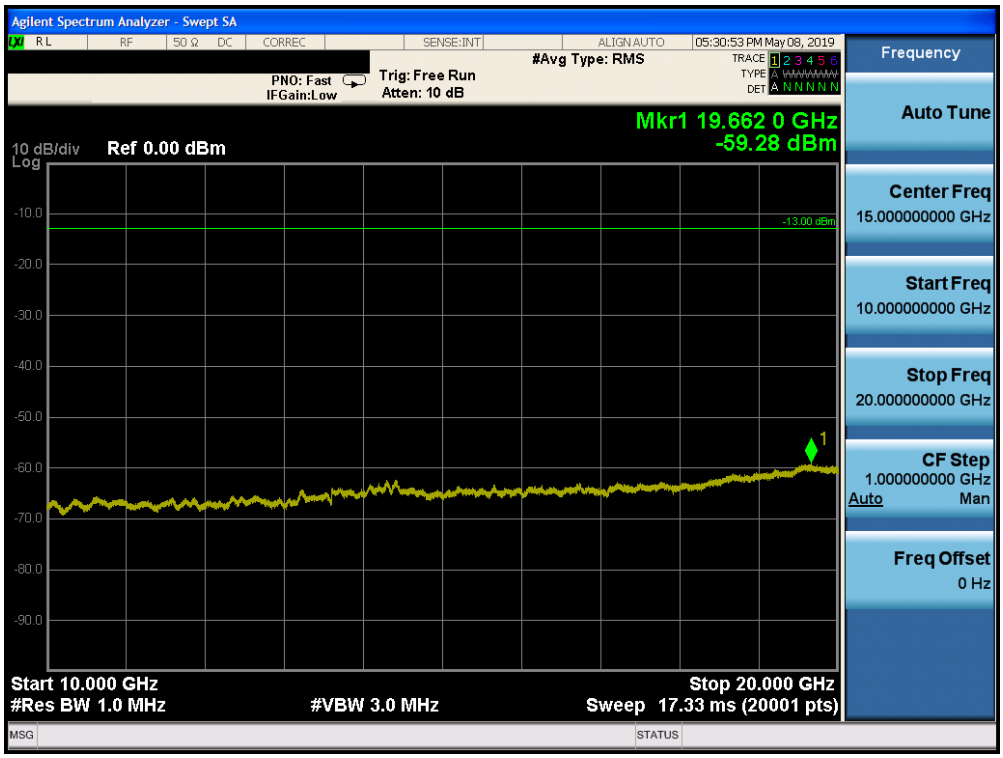
Plot 7-72. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-73. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

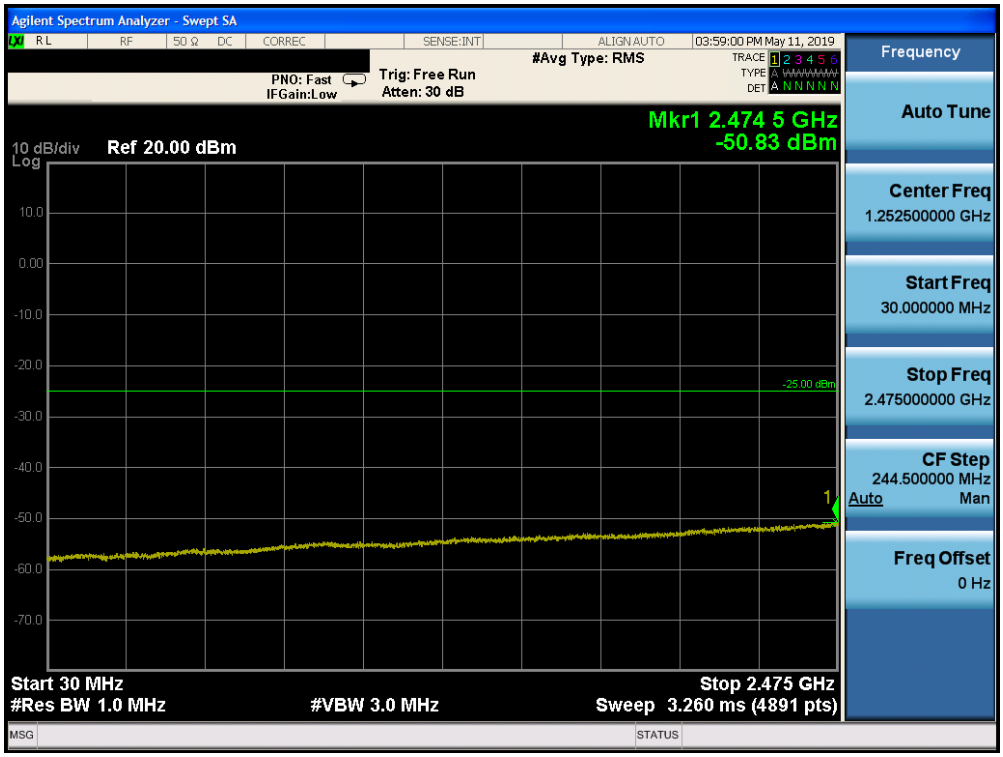


Plot 7-74. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

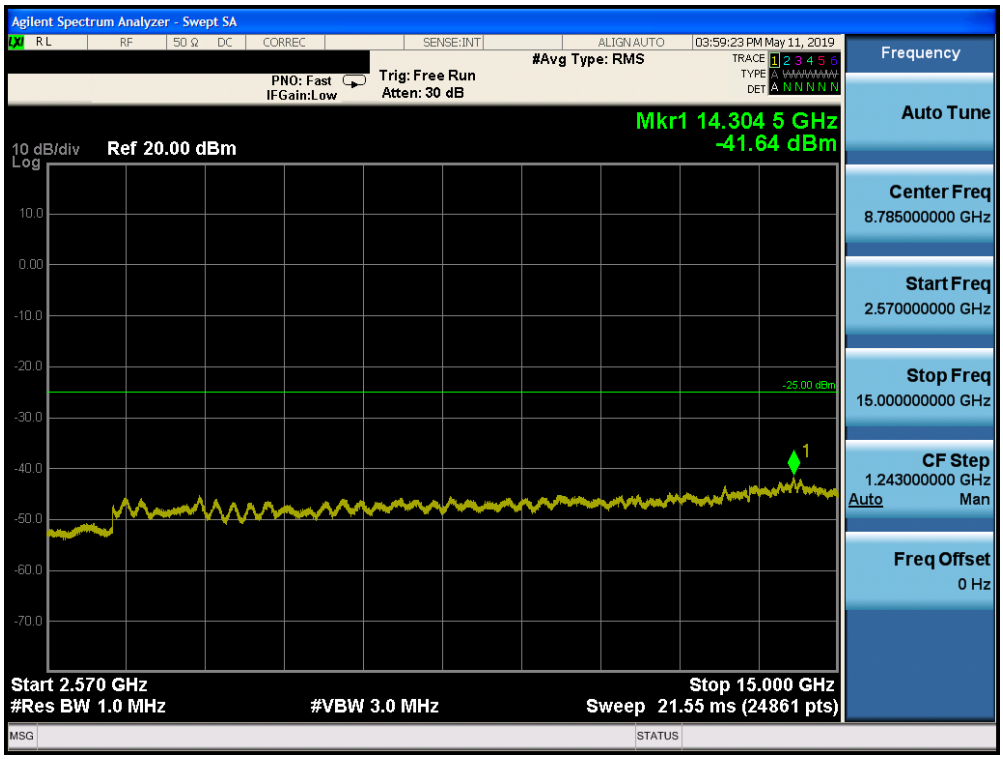


Plot 7-75. Conducted Spurious Plot (Band 25/2 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

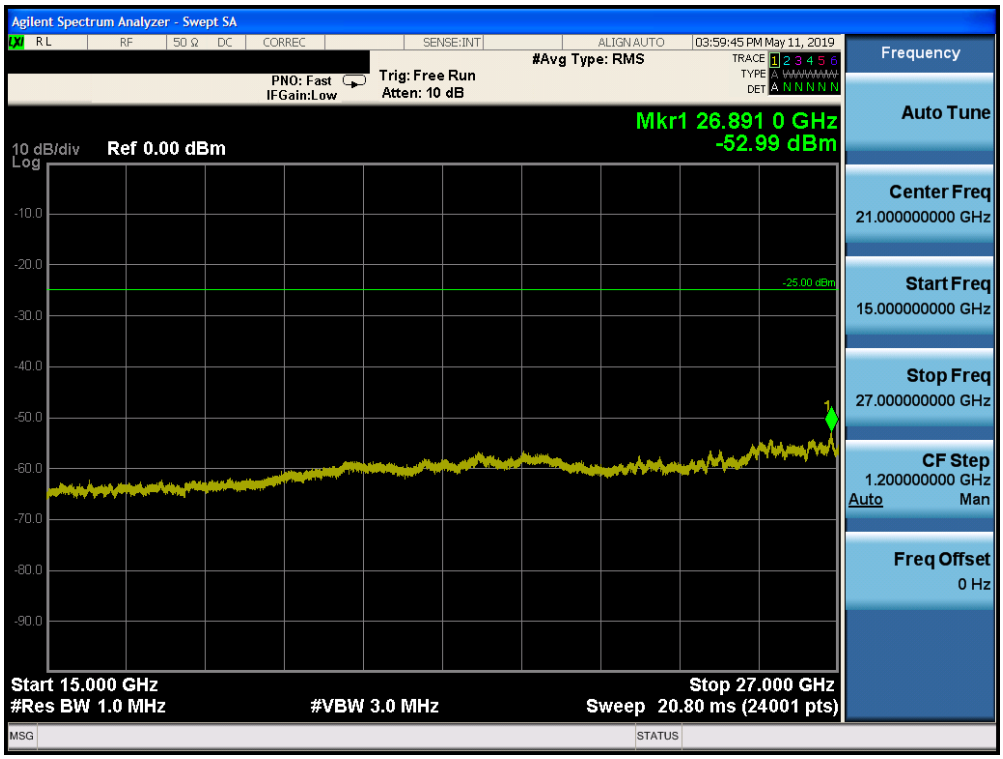
Band 7



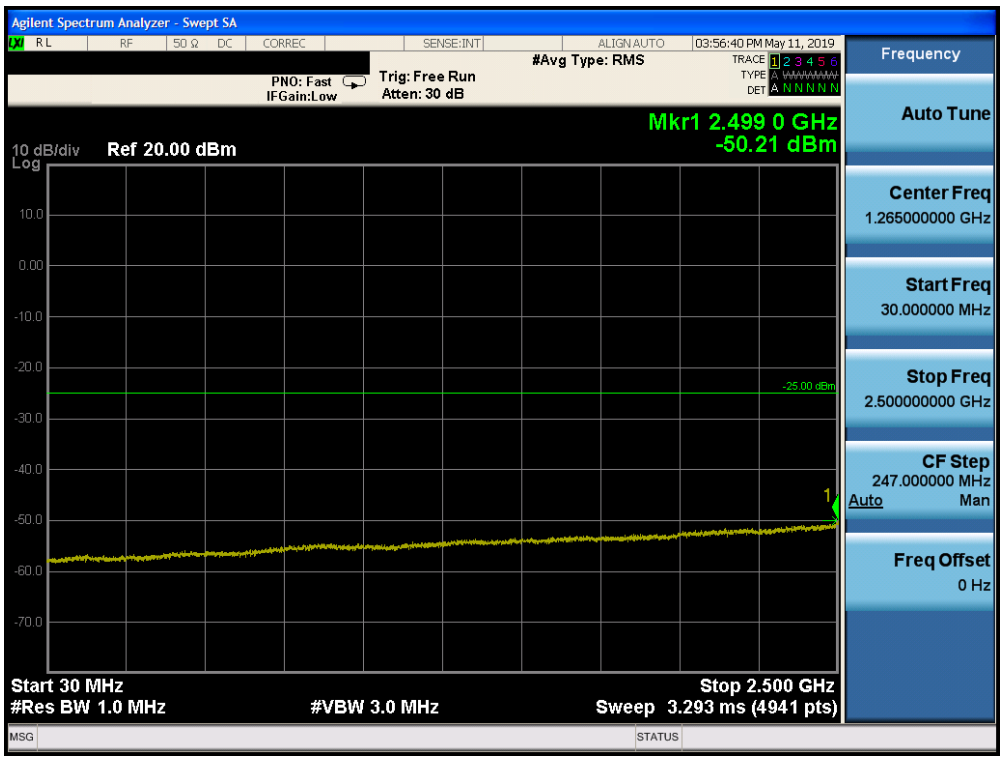
Plot 7-76. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-77. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-78. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



Plot 7-79. Conducted Spurious Plot (Band 7 - 20.0MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)