PCTEST ENGINEERING LABORATORY, INC.
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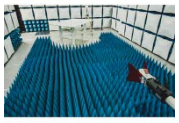


MEASUREMENT REPORT
FCC Part 30 5G mmWave

Applicant Name:
LG Electronics USA, Inc.
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
3/21/2019-5/3/2019
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M1903070034-14-R2.ZNF

FCC ID:	**ZNFV450VM**
APPLICANT:	**LG Electronics USA, Inc.**

Model:	LM-V450VM
Additional Model(s):	LMV450VM, V450VM
Application Type:	Class II Permissive Change
EUT Type:	Portable Handset
FCC Classification:	Part 30 Mobile Transmitter (5GM)
Test Procedure(s):	ANSI C63.26-2015
Class II Permissive Change:	Please see FCC change document

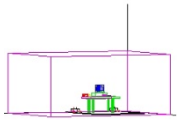
This revised Test Report (S/N: 1M1903070034-14-R2.ZNF) supersedes and replaces the previously issued test report (S/N: 1M1903070034-14.ZNF) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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.

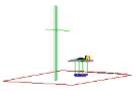
I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking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

Randy Ortanez
President

TABLE OF CONTENTS



MEASUREMENT REPORT
FCC Part 30



Mode	FCC Rule Part	Antenna	Bandwidth (MHz)	CCs Active	Tx Frequency (MHz)	EIRP		Modulation
						Max. Power (W)	Max. Power (dBm)	
n261	30	QTM0	50	1	27500 - 28350	0.364	25.61	QPSK
n261	30	QTM0	50	1	27500 - 28350	0.281	24.48	16QAM
n261	30	QTM0	50	1	27500 - 28350	0.220	23.43	64QAM
n261	30	QTM0	100	1	27500 - 28350	0.364	25.62	QPSK
n261	30	QTM0	100	1	27500 - 28350	0.295	24.70	16QAM
n261	30	QTM0	100	1	27500 - 28350	0.197	22.94	64QAM
n261	30	QTM0	200	4	27500 - 28350	0.146	21.63	QPSK
n261	30	QTM0	200	4	27500 - 28350	0.131	21.19	16QAM
n261	30	QTM0	200	4	27500 - 28350	0.113	20.55	64QAM
n261	30	QTM0	400	4	27500 - 28350	0.163	22.11	QPSK
n261	30	QTM0	400	4	27500 - 28350	0.125	20.97	16QAM
n261	30	QTM0	400	4	27500 - 28350	0.087	19.39	64QAM
n261	30	QTM1	50	1	27500 - 28350	0.342	25.34	QPSK
n261	30	QTM1	50	1	27500 - 28350	0.240	23.81	16QAM
n261	30	QTM1	50	1	27500 - 28350	0.185	22.66	64QAM
n261	30	QTM1	100	1	27500 - 28350	0.396	25.97	QPSK
n261	30	QTM1	100	1	27500 - 28350	0.292	24.66	16QAM
n261	30	QTM1	100	1	27500 - 28350	0.201	23.04	64QAM
n261	30	QTM1	200	4	27500 - 28350	0.221	23.44	QPSK
n261	30	QTM1	200	4	27500 - 28350	0.179	22.53	16QAM
n261	30	QTM1	200	4	27500 - 28350	0.123	20.89	64QAM
n261	30	QTM1	400	4	27500 - 28350	0.184	22.65	QPSK
n261	30	QTM1	400	4	27500 - 28350	0.148	21.71	16QAM
n261	30	QTM1	400	4	27500 - 28350	0.099	19.94	64QAM
n260	30	QTM0	50	1	37000 - 40000	0.246	23.91	QPSK
n260	30	QTM0	50	1	37000 - 40000	0.136	21.34	16QAM
n260	30	QTM0	50	1	37000 - 40000	0.092	19.65	64QAM
n260	30	QTM0	100	1	37000 - 40000	0.241	23.83	QPSK
n260	30	QTM0	100	1	37000 - 40000	0.191	22.82	16QAM
n260	30	QTM0	100	1	37000 - 40000	0.124	20.93	64QAM
n260	30	QTM0	200	4	37000 - 40000	0.133	21.25	QPSK
n260	30	QTM0	200	4	37000 - 40000	0.099	19.97	16QAM
n260	30	QTM0	200	4	37000 - 40000	0.093	19.68	64QAM
n260	30	QTM0	400	4	37000 - 40000	0.105	20.21	QPSK
n260	30	QTM0	400	4	37000 - 40000	0.093	19.70	16QAM
n260	30	QTM0	400	4	37000 - 40000	0.064	18.05	64QAM
n260	30	QTM1	50	1	37000 - 40000	0.333	25.22	QPSK
n260	30	QTM1	50	1	37000 - 40000	0.217	23.36	16QAM
n260	30	QTM1	50	1	37000 - 40000	0.166	22.19	64QAM
n260	30	QTM1	100	1	37000 - 40000	0.336	25.27	QPSK
n260	30	QTM1	100	1	37000 - 40000	0.273	24.37	16QAM
n260	30	QTM1	100	1	37000 - 40000	0.171	22.32	64QAM
n260	30	QTM1	200	4	37000 - 40000	0.124	20.93	QPSK
n260	30	QTM1	200	4	37000 - 40000	0.098	19.90	16QAM
n260	30	QTM1	200	4	37000 - 40000	0.071	18.49	64QAM
n260	30	QTM1	400	4	37000 - 40000	0.120	20.80	QPSK
n260	30	QTM1	400	4	37000 - 40000	0.097	19.87	16QAM
n260	30	QTM1	400	4	37000 - 40000	0.072	18.57	64QAM

EUT EIRP Overview

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 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 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 (2451B) 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 **LG Portable Handset FCC ID: ZNFV450VM**. The test data contained in this report pertains only to the emissions due to the EUT's 5G mmWave function.

The EUT has 2 dual pole patch arrays. The dual pole patch array each consist of 4 radiating elements . Each of the patch antennas is comprised of two separate antenna feeds - one for horizontal and one for vertical polarization.

The EUT supports up to 8CC for DL, and 4CC for UL. For each CC, the EUT supports both 50MHz bandwidth and 100MHz bandwidth. For modulation, the EUT supports QPSK, 16QAM and 64QAM. Different Beam IDs are supported, each corresponding to a different position in space for each antenna. During testing, FTM (Factory Test Mode) was used to operate the transmitter. MIMO operation was achieved by enabling two Beam IDs at the same time: one is from the list of H Beam IDs and other is from the list of V Beam IDs.

Test Device Serial No.: 05995, 05987

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ac WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC, 5G NR Bands n261/n260

2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated tests.

EIRP Simulation data for all Beam IDs was used to determine the worst case Beam ID for SISO operation and Beam ID pair for MIMO operation. These Beam ID's was used for final measurements.

All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation.

2.4 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 "American National Standard for Compiance Testing of Transmitter Used in Licensed Radio Service" (ANSI C63.26-2015) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03) were used in the measurement of the EUT**.**

3.2 Radiated Power and Radiated Spurious Emissions

§30.202, §30.203, §30.404, §30.405

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. The measurement antenna is in the far field of the EUT per formula $2D^2/\lambda$ where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)
18-40	0.749	0.54
40-60	0.500	1.39
60-90	0.333	0.91
90-100	0.300	0.42

Table 3-1. Far-Field Distance per Frequency Range

Radiated power levels are investigated with the receive antenna horizontally and vertically polarized.

Effective Isotropic Radiated Power Sample Calculation

The measured e.i.r.p is converted to E-field in V/m. Then the distance correction is applied before converted back to calculated e.i.r.p.

Field Strength [dBμV/m] = Measured Value [dBm] + AFCL [dB/m] + 107

= - 34.06 dBm + (40.6dB/m + 8.49dB) + 107 = 122.03dBuV/m

= 10^(122.03/20)/1000000 = 1.26 V/m

e.i.r.p. [dBm] = 10 * log((E-Field*D_m)^2/30) + 30dB

= 10*log((1.26V/m * 1.00m)^2/30) + 30dB

= **17.24 dBm e.i.r.p.**

Sample MIMO e.i.r.p. Calculation:

The e.i.r.p at Antenna A, Antenna B, Antenna C and Antenna D were first measured individually. The measured values were then summed in linear power units then converted back to dBm for the co-polarized antennas.

Conversion to linear value = 10*(e.i.r.p/10) = 10*(17.24/10) = 52.97mW

MIMO e.i.r.p. = $e.i.r.p._H$ + $e.i.r.p._V$

= 52.97mW + 43.15mW

=10*log(96.12mW)

= 19.83dBm

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	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2017	Biennial	10/10/2019	121034
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	9/17/2018	Annual	9/17/2019	441119
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
Keysight Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	3/20/2018	Annual	3/20/2019	MY49430494
Keysight Technologies	N9030A	PXA Signal Analyzer	8/6/2018	Annual	8/6/2019	MY54490576
OML, Inc.	M19RH	Horn Antenna	7/30/2018	Annual	7/30/2019	18073001
OML, Inc.	M12RH	Horn Antenna	7/30/2018	Annual	7/30/2019	18073001
OML, Inc	M08RH	Horn Antenna	7/30/2018	Annual	7/30/2019	18073001
OML, Inc	M05RH	Horn Antenna	7/30/2018	Annual	7/30/2019	18073001
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/17/2018	Annual	8/17/2019	103200
Rohde & Schwarz	180-442-KF	Horn (Small)	8/21/2018	Annual	8/21/2019	U157403-01
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	5/21/2018	Annual	5/21/2019	100342
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	6/18/2018	Annual	6/18/2019	102134
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107
Virginia Diodes Inc	SAX252	SAX Module (60 - 90GHz)	5/14/2018	Annual	5/14/2019	SAX252
Virginia Diodes Inc	SAX253	SAX Module (90 - 140GHz)	5/8/2018	Annual	5/8/2019	SAX253
Virginia Diodes Inc	SAX254	SAX Module (140 - 220GHz)	5/22/2018	Annual	5/22/2019	SAX254

Table 5-1. Test Equipment

Notes:

1. 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 = 8M62G7D

BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics USA, Inc.

FCC ID: ZNFV450VM

FCC Classification: Part 30 Mobile Transmitter (5GM)

Mode(s): TDD

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	RADIATED	PASS	Section 7.2
2.1046, 30.202	RF Output Power / EIRP	Equivalent Isotropic Radiated Power		PASS	Section 7.3
2.1051, 30.203	Spurious Emissions	-13dBm/Mhz for all out-of-band emissions, -5dBm/MHz from the band edge up to 10% of the channel BW		PASS	Section 7.3, 7.5

Table 7-1. Summary of Radiated Test Results

Notes:

1) All modes of operation and modulations were investigated. The test results shown in the following sections represent the worst case emissions.
2) Per 2.1057(a)(2), n261 spurious emissions were investigated up to 100GHz, n260 spurious emissions were investigated up to 200GHz.
3) All radiated emission measurements at the band edge are converted to an equivalent conductive power by subtracting the known antenna gain from the EIRP measured at each frequency of interest. These emissions are compared to the 30.203 spurious emission limits as conductive power levels.
4) The radiated RF output power and all out-of-band emissions in the spurious domain are evaluated to the EIRP limits.
5) “CC” refers to “Component Carriers”.
6) Beam IDs were chosed based on which Beam ID produces the highest EIRP during EIRP simulation.
7) All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation (100% duty cycle).

7.2 Occupied Bandwidth

§2.1049

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

ANSI C63.25-2015 Section 5.4.3

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

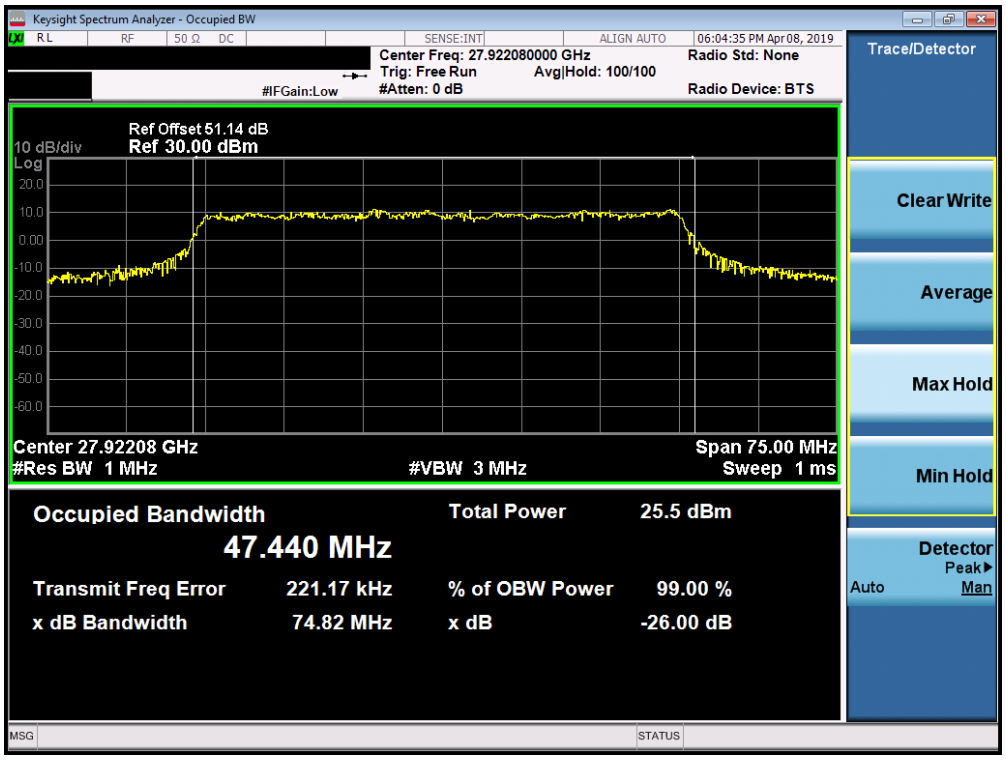
Test Notes

None.

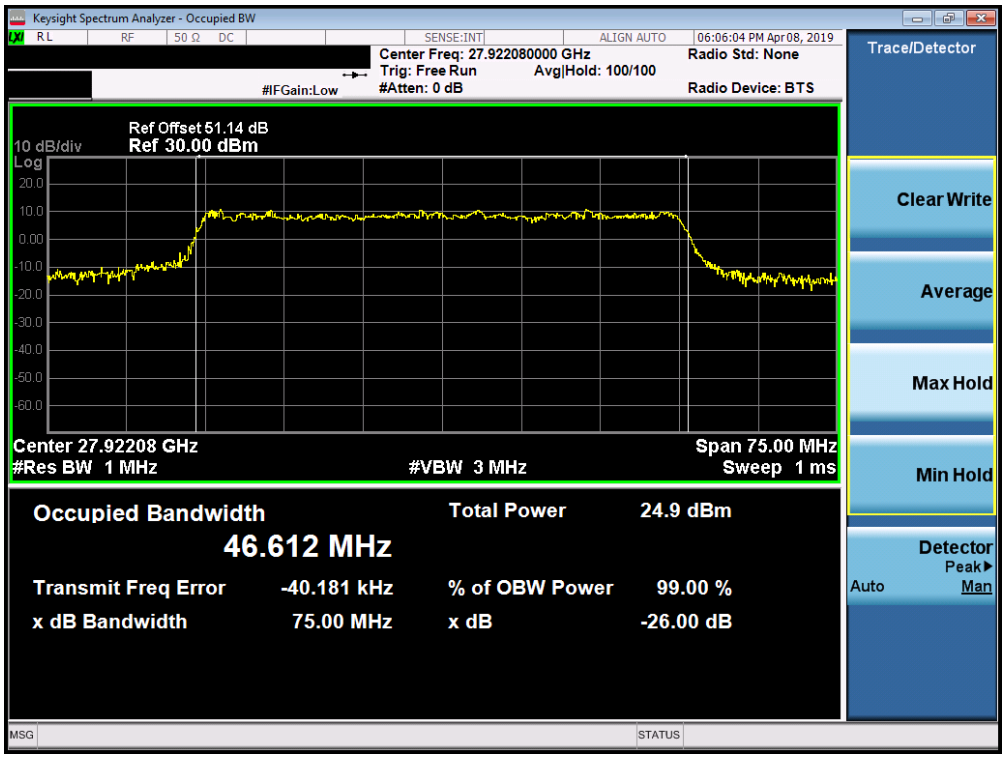
7.2.1 QTM0 Occupied Bandwidth n261

Channel	Total Bandwidth [MHz]	CCs Active	Modulation	Occupied Bandwidth [MHz]
Mid	50	1	QPSK	47.44
Mid	50	1	16QAM	46.61
Mid	50	1	64QAM	46.90
Mid	200	4	QPSK	198.17
Mid	200	4	16QAM	197.37
Mid	200	4	64QAM	197.55
Mid	100	1	QPSK	94.93
Mid	100	1	16QAM	94.69
Mid	100	1	64QAM	94.66
Mid	400	4	QPSK	394.84
Mid	400	4	16QAM	395.38
Mid	400	4	64QAM	398.05

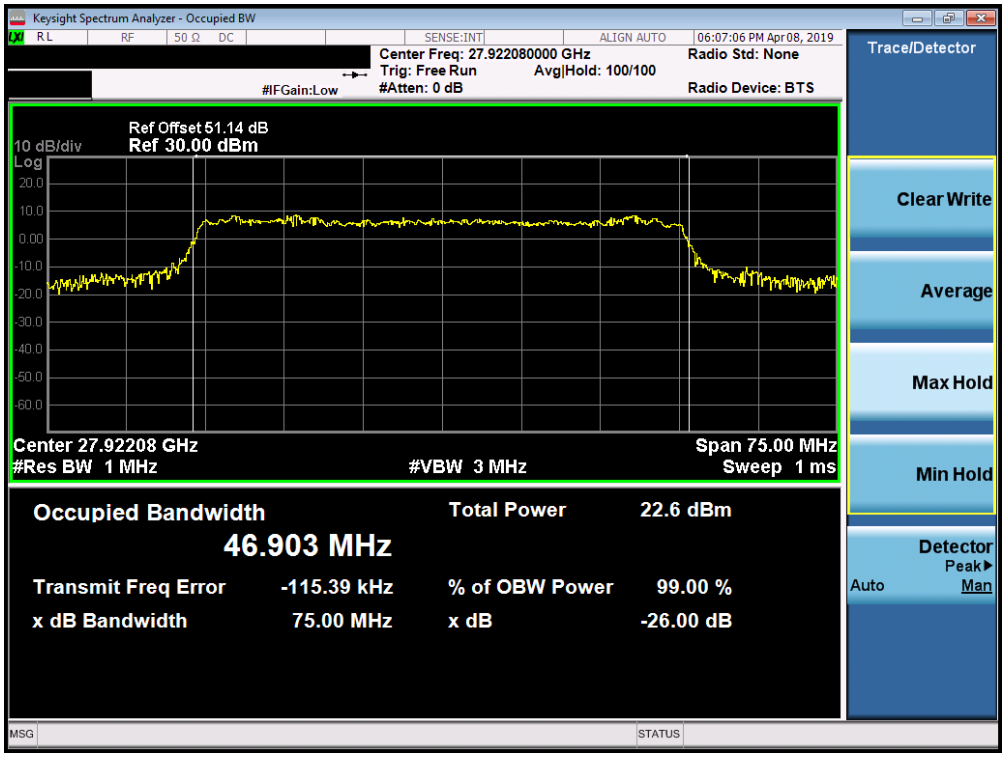
Table 7-2. QTM0 n261 Occupied Bandwidth Summary Data



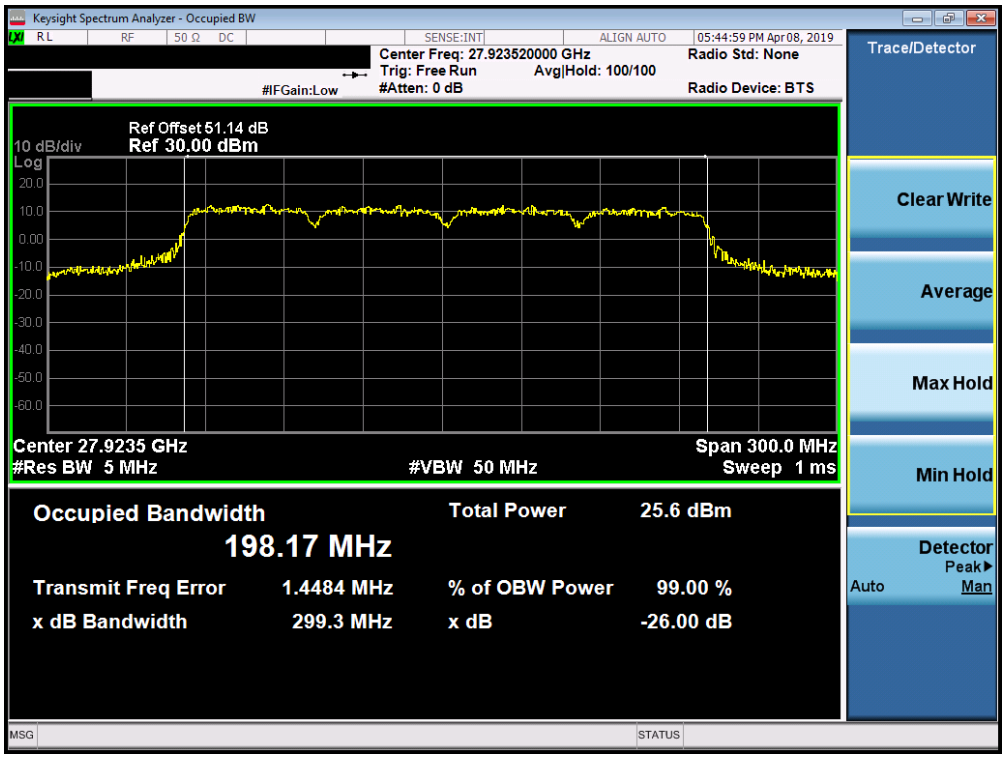
Plot 7-1. Occupied Bandwidth Plot (1CC-50MHz Bandwidth QPSK Mid Channel)



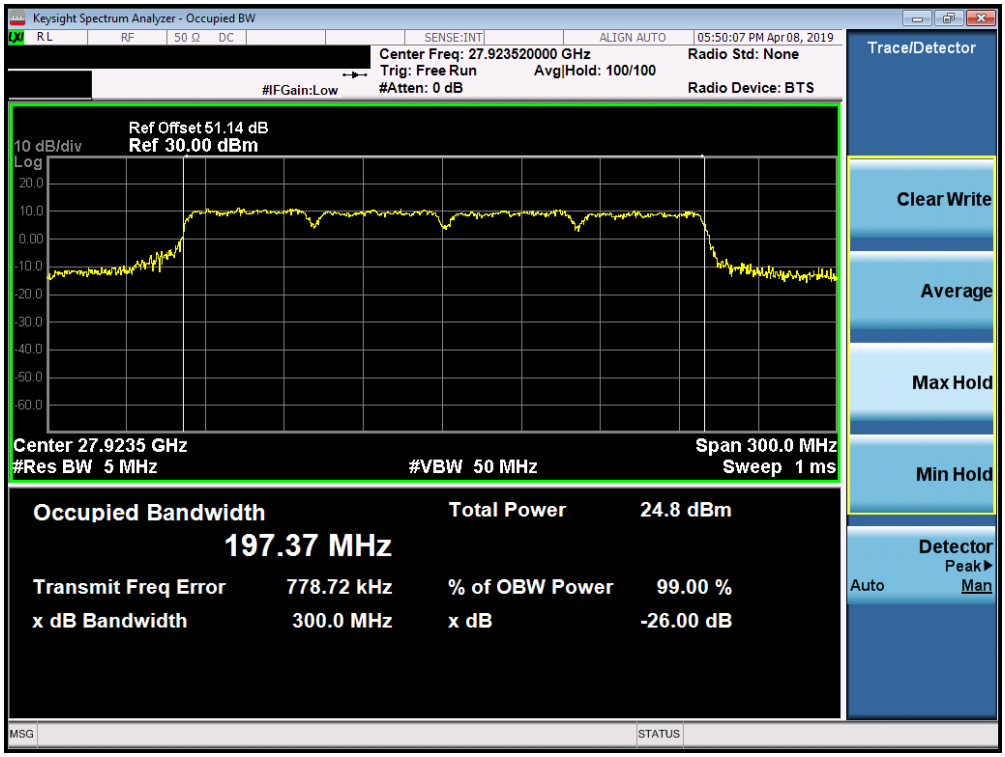
Plot 7-2. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 16QAM Mid Channel)



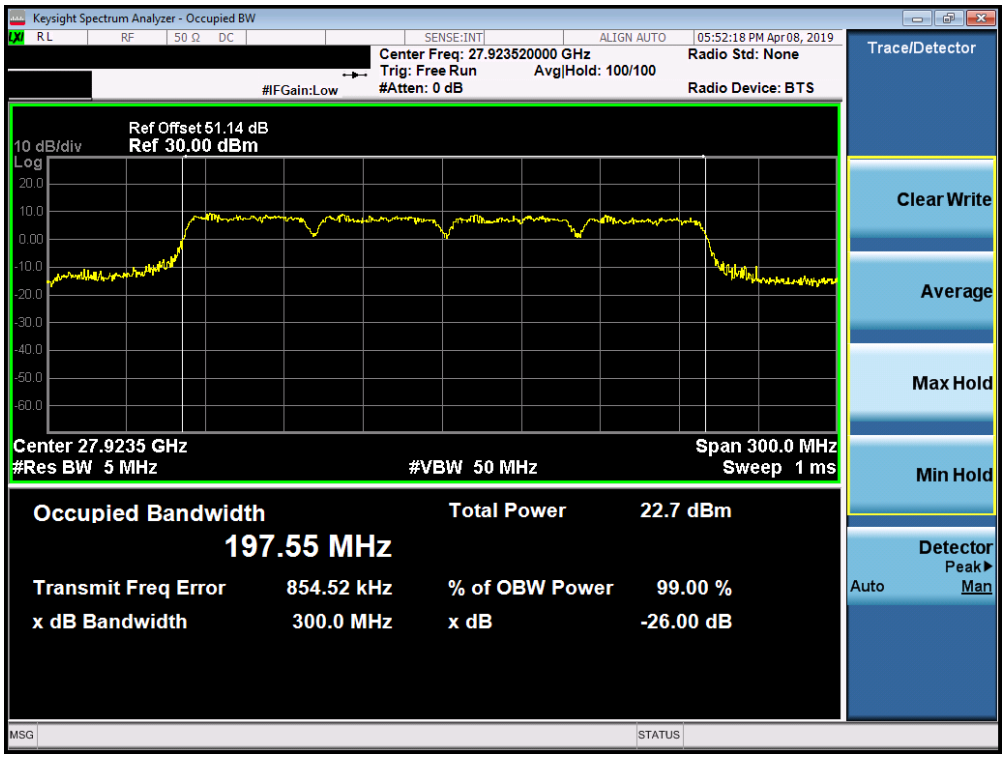
Plot 7-3. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 64QAM Mid Channel)



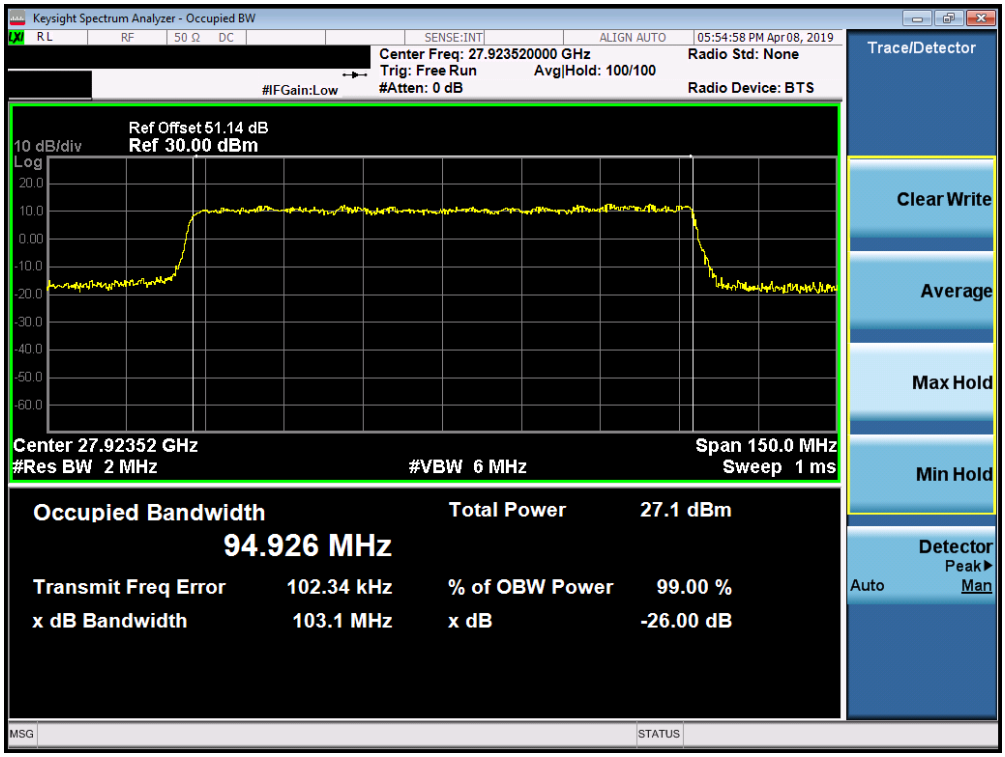
Plot 7-4. Occupied Bandwidth Plot (4CC-50MHz Bandwidth QPSK Mid Channel)



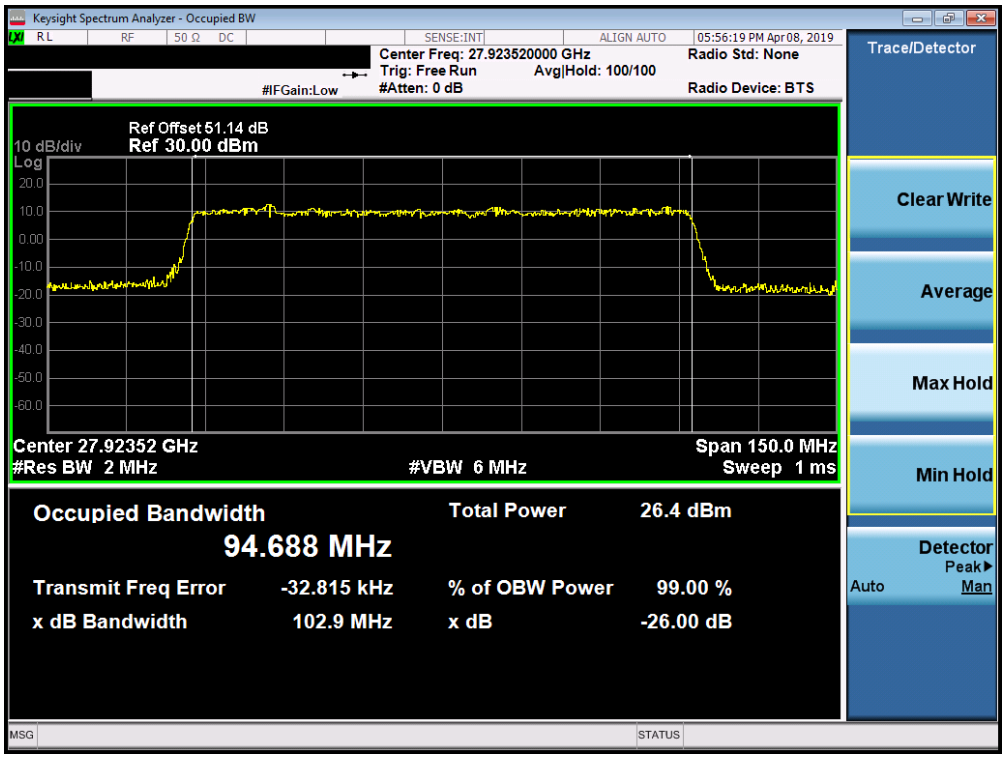
Plot 7-5. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 16QAM Mid Channel)



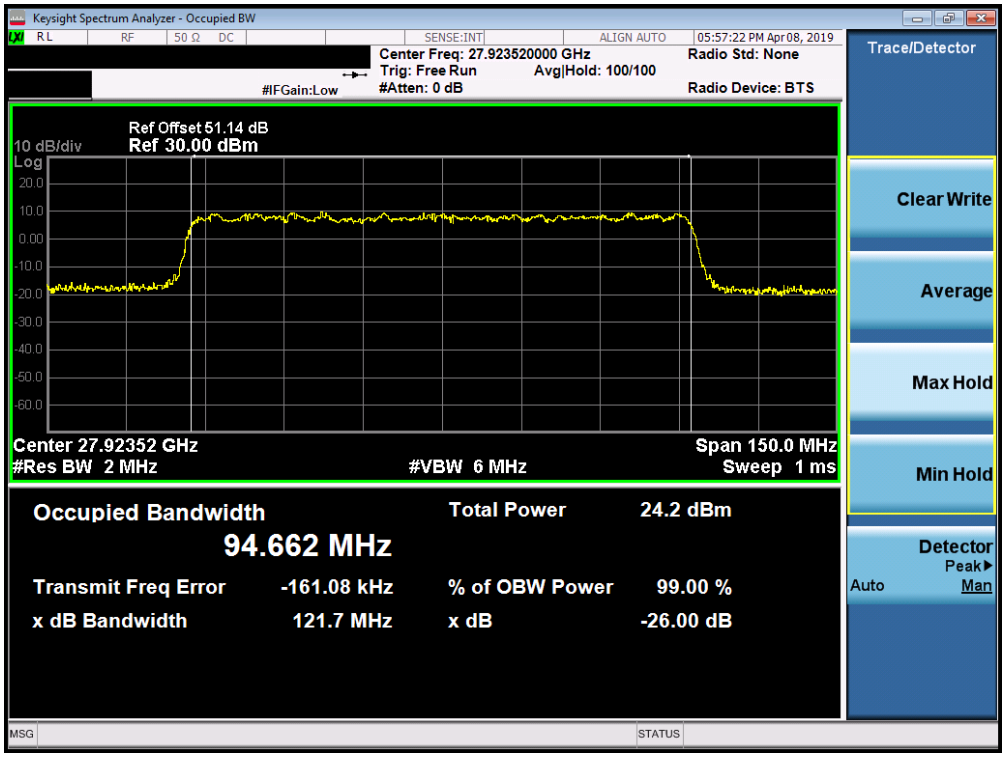
Plot 7-6. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 64QAM Mid Channel)



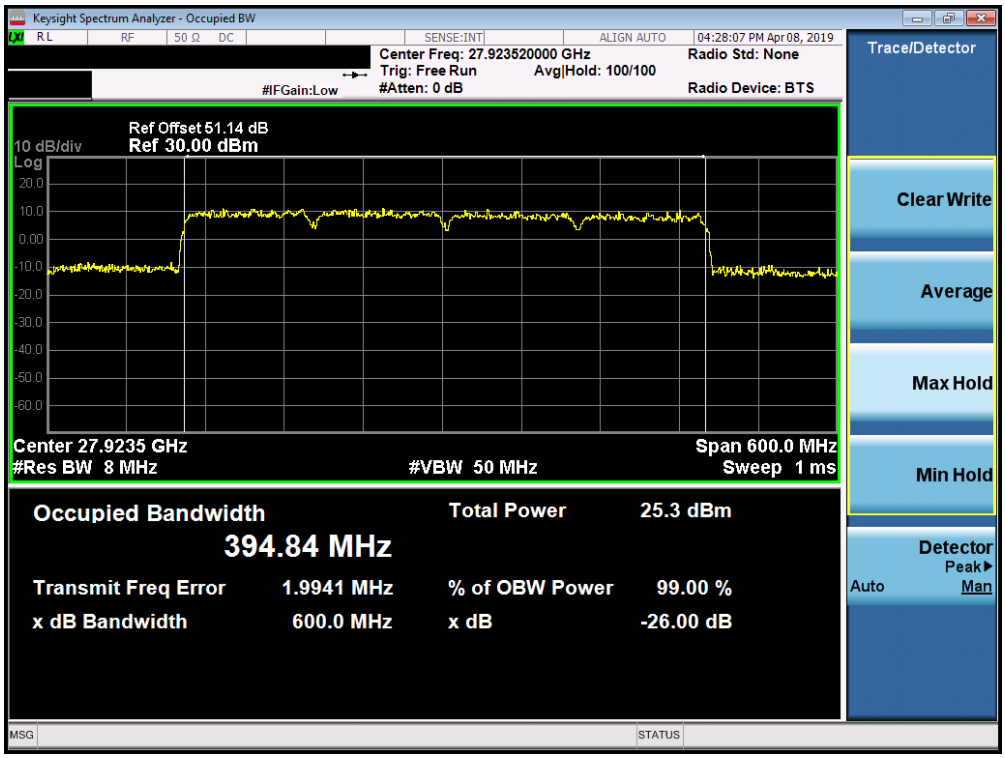
Plot 7-7. Occupied Bandwidth Plot (1CC-100MHz Bandwidth QPSK Mid Channel)



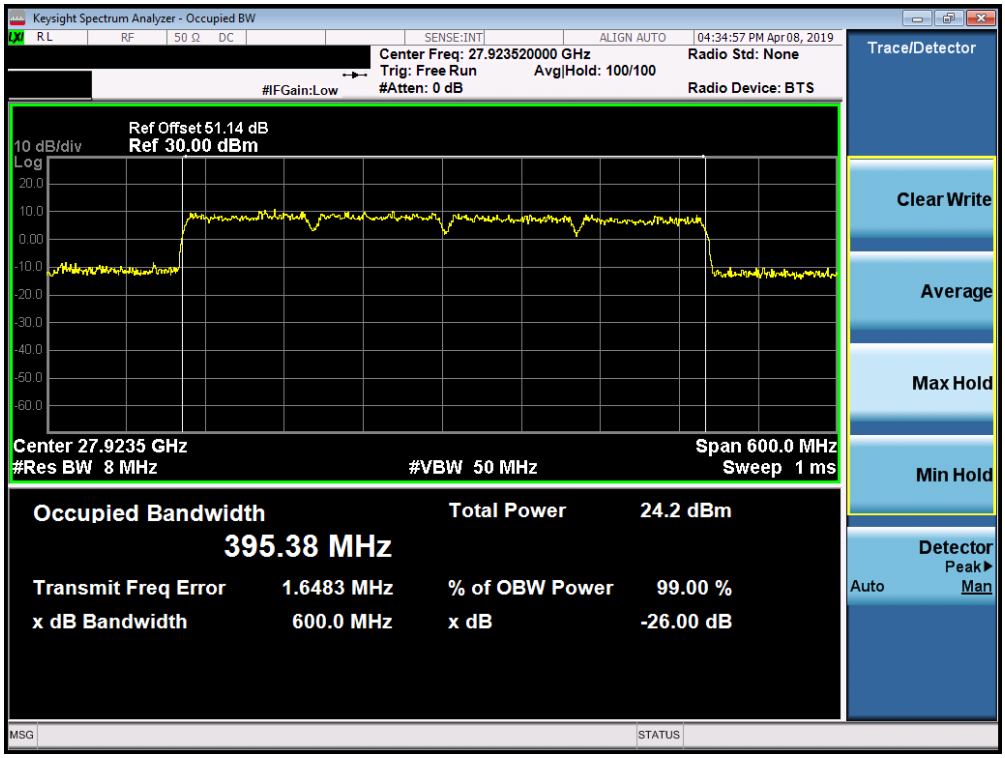
Plot 7-8. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 16QAM Mid Channel)



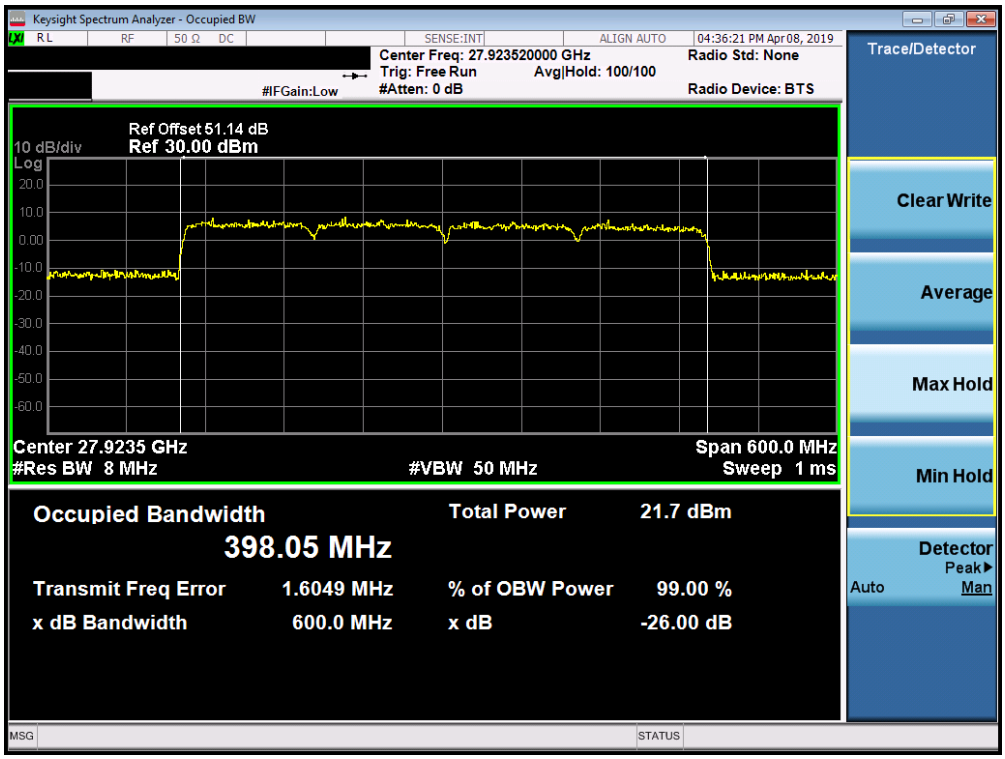
Plot 7-9. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 64QAM Mid Channel)



Plot 7-10. Occupied Bandwidth Plot (4CC-100MHz Bandwidth QPSK Mid Channel)



Plot 7-11. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 16QAM Mid Channel)

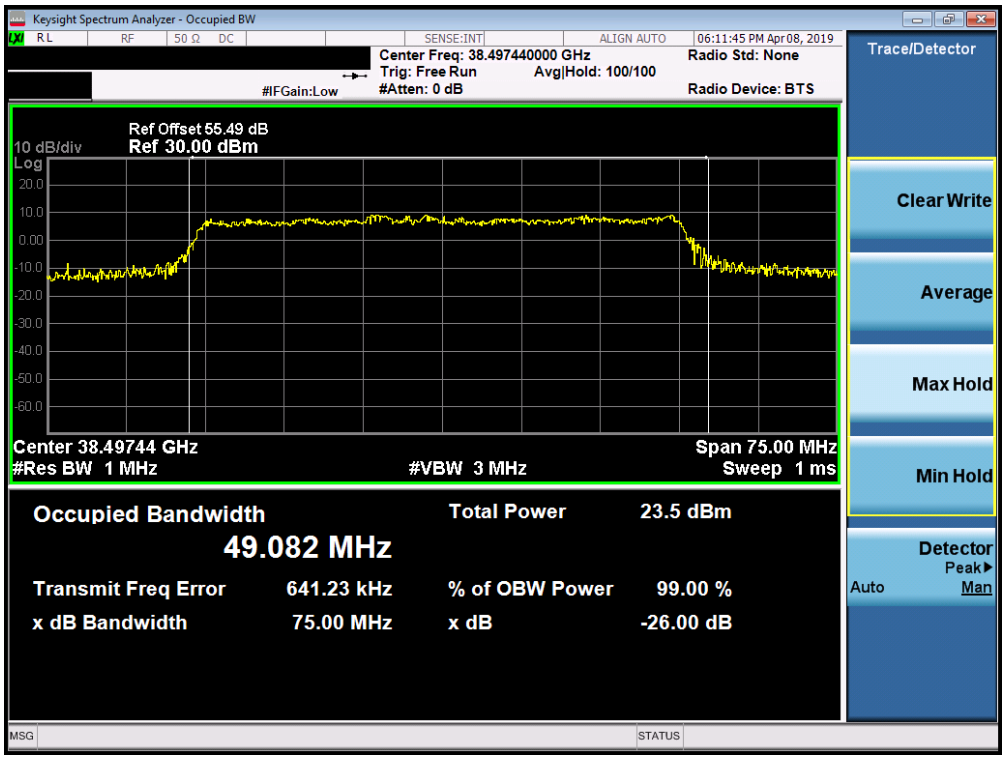


Plot 7-12. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 64QAM Mid Channel)

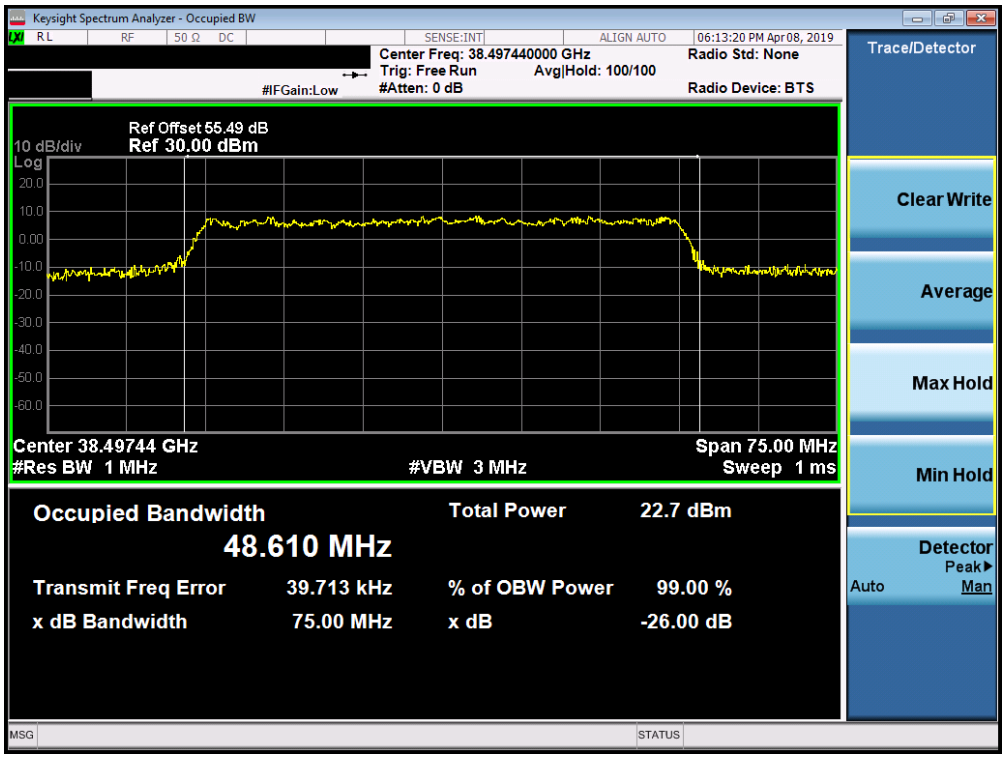
7.2.2 QTM0 Occupied Bandwidth n260

Channel	Total Bandwidth [MHz]	CCs Active	Modulation	Occupied Bandwidth [MHz]
Mid	50	1	QPSK	49.08
Mid	50	1	16QAM	48.61
Mid	50	1	64QAM	53.74
Mid	200	4	QPSK	198.50
Mid	200	4	16QAM	197.58
Mid	200	4	64QAM	198.22
Mid	100	1	QPSK	95.08
Mid	100	1	16QAM	95.23
Mid	100	1	64QAM	95.68
Mid	400	4	QPSK	400.07
Mid	400	4	16QAM	399.90
Mid	400	4	64QAM	405.08

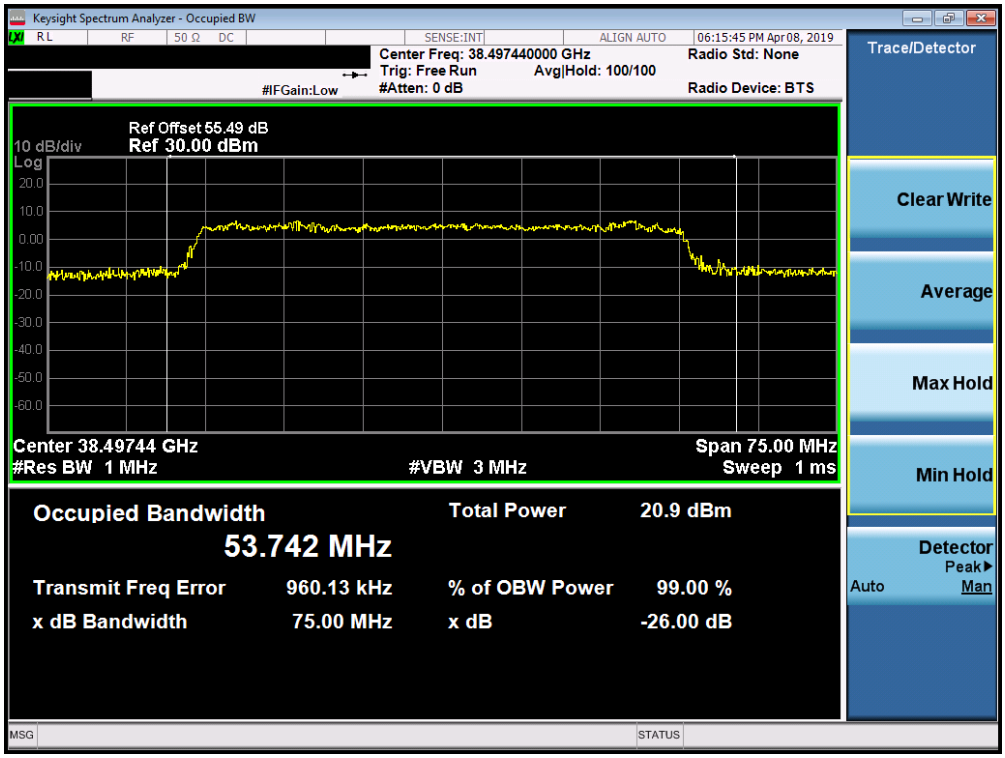
Table 7-3. QTM0 n260 Occupied Bandwidth Summary Data



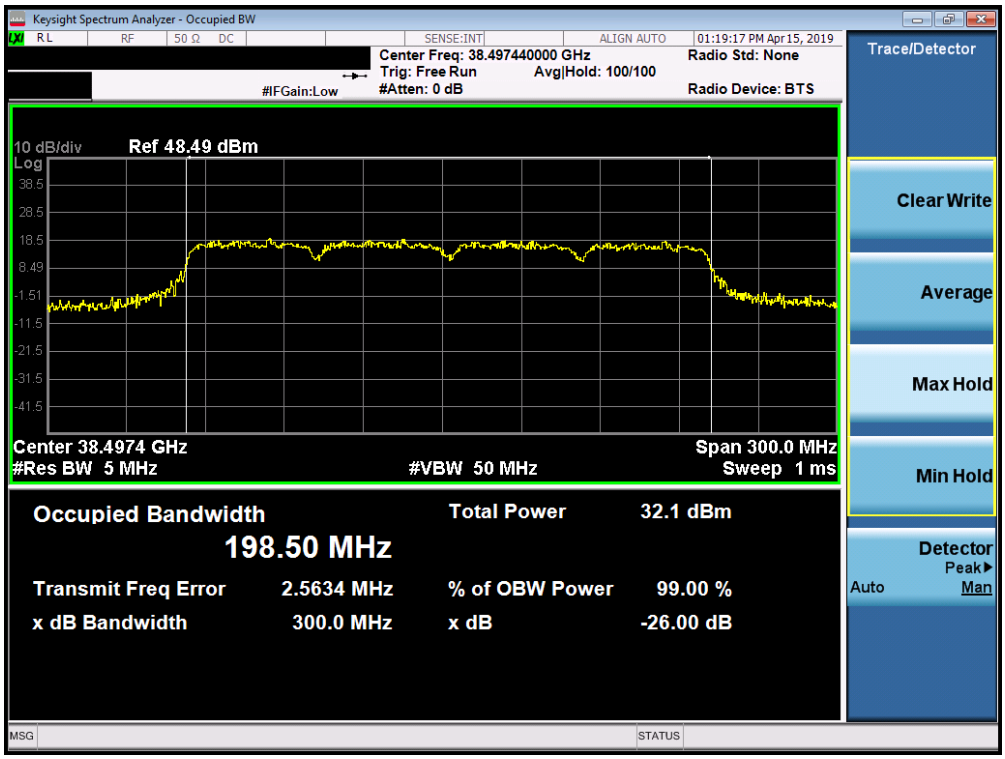
Plot 7-13. Occupied Bandwidth Plot (1CC-50MHz Bandwidth QPSK Mid Channel)



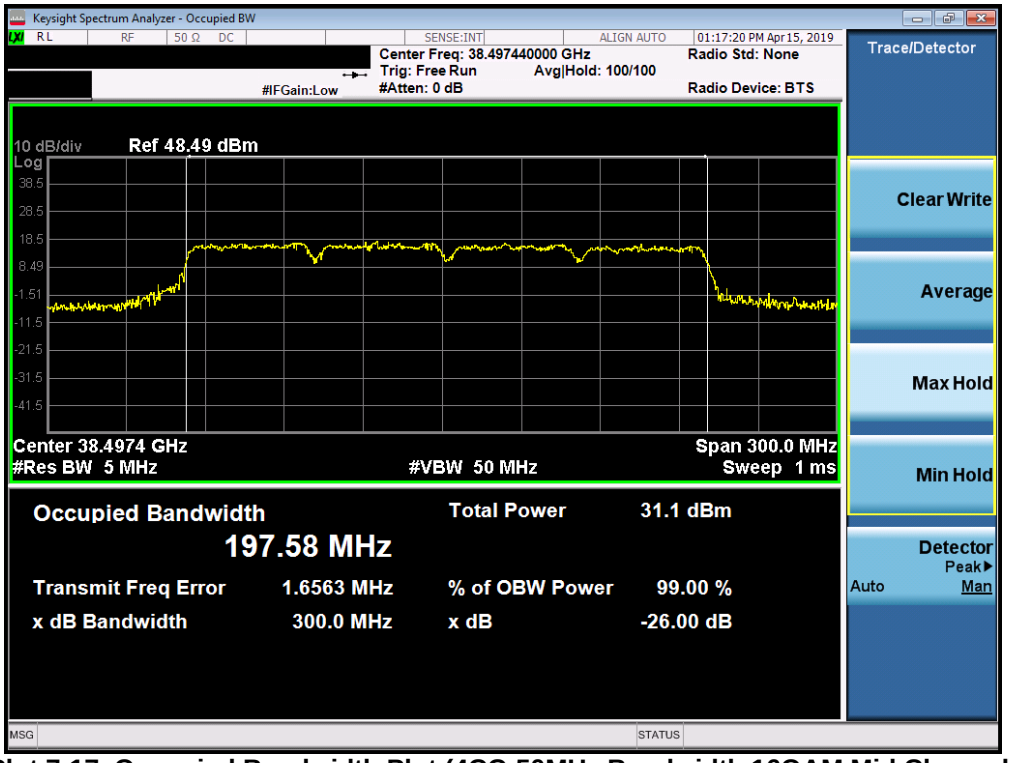
Plot 7-14. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 16QAM Mid Channel)



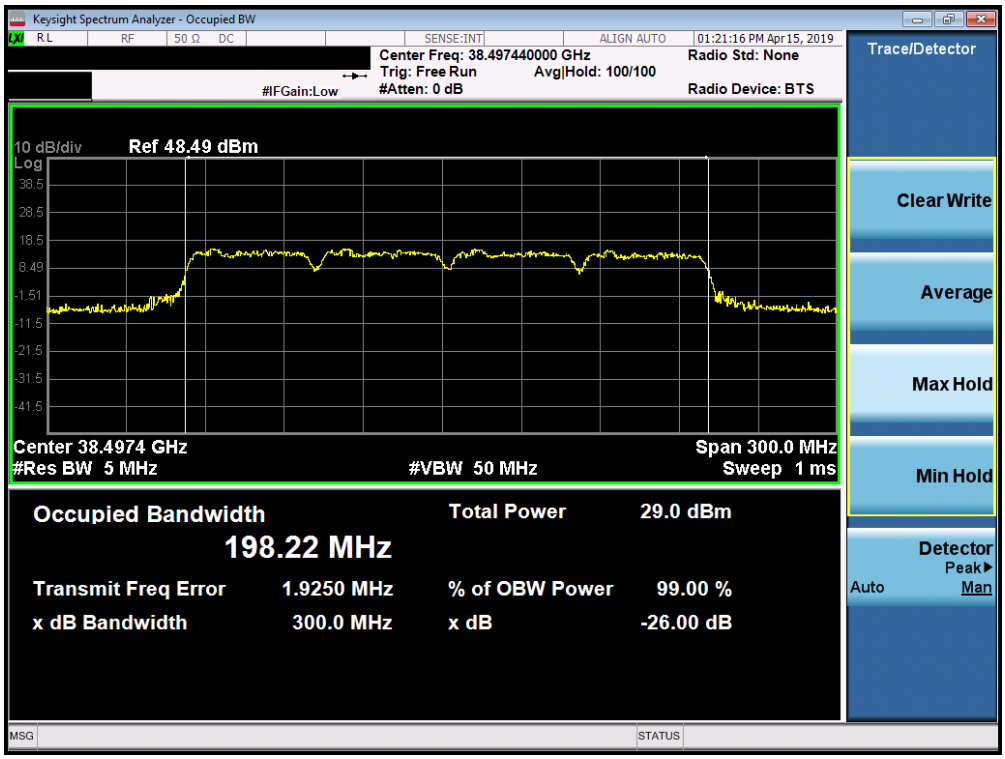
Plot 7-15. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 64QAM Mid Channel)



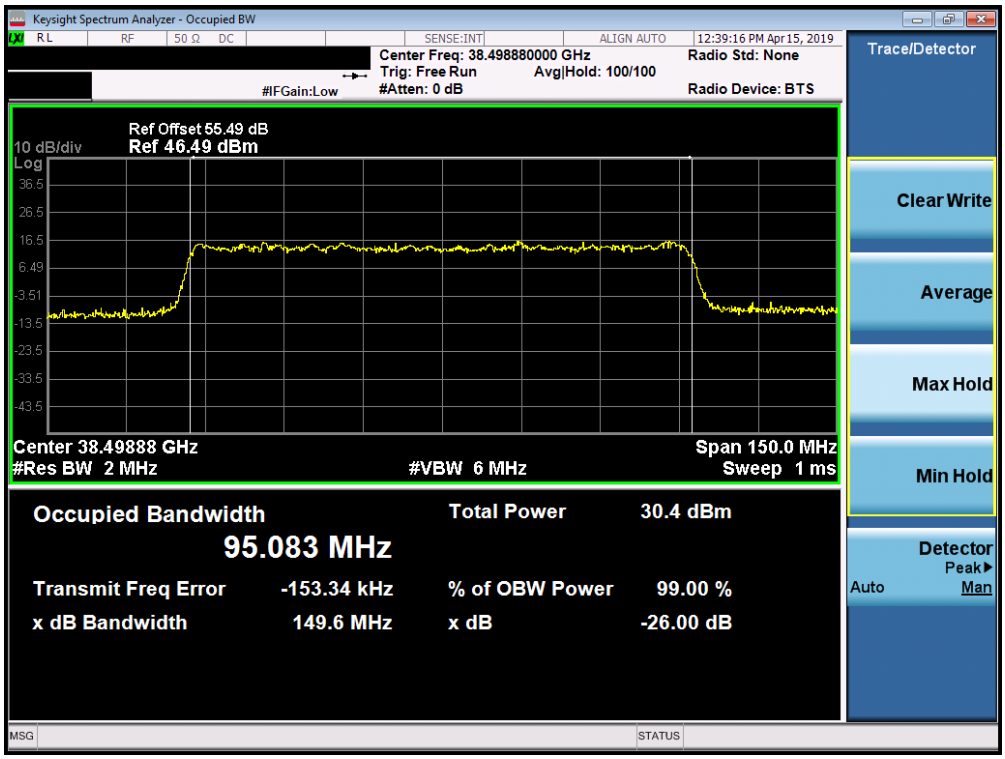
Plot 7-16. Occupied Bandwidth Plot (4CC-50MHz Bandwidth QPSK Mid Channel)



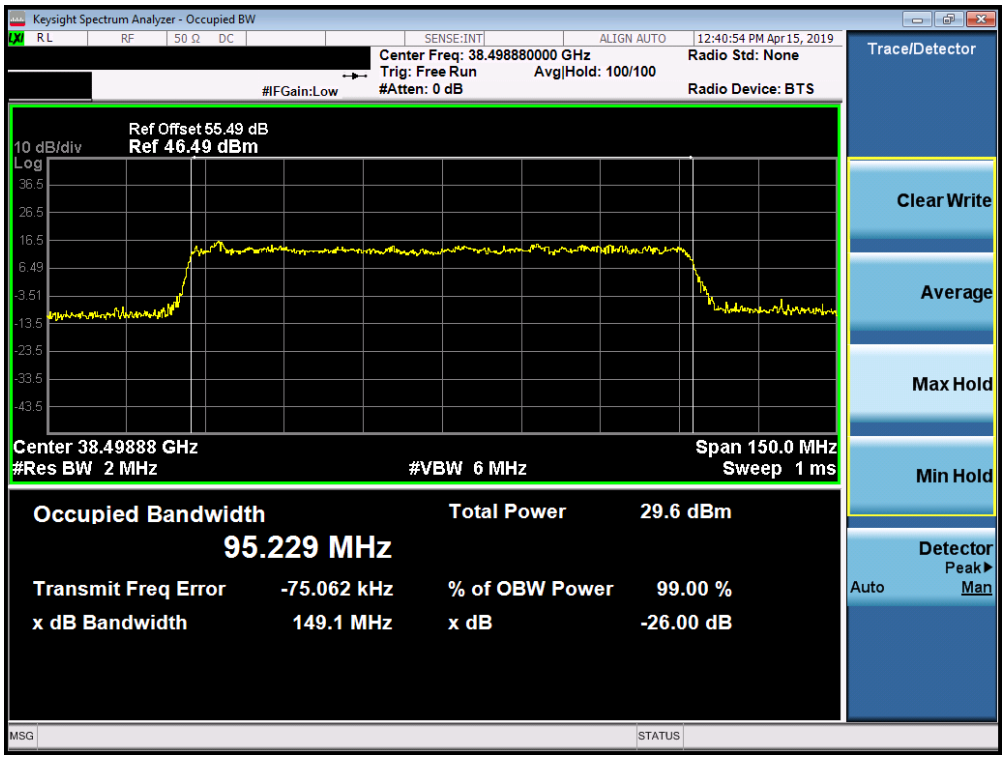
Plot 7-17. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 16QAM Mid Channel)



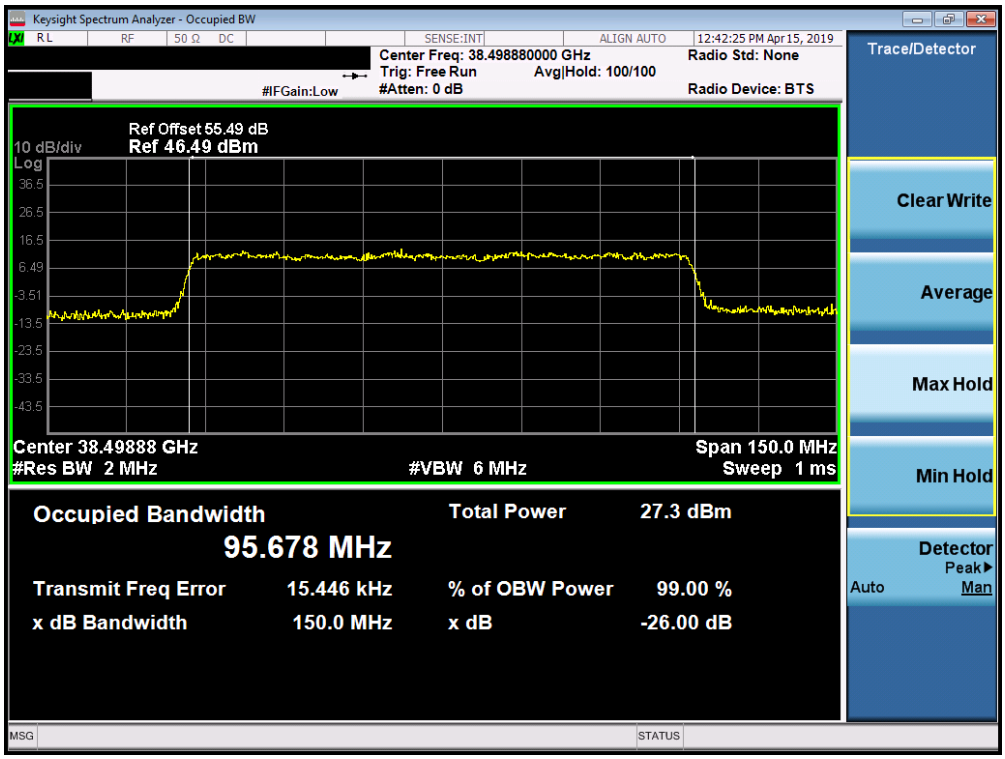
Plot 7-18. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 64QAM Mid Channel)



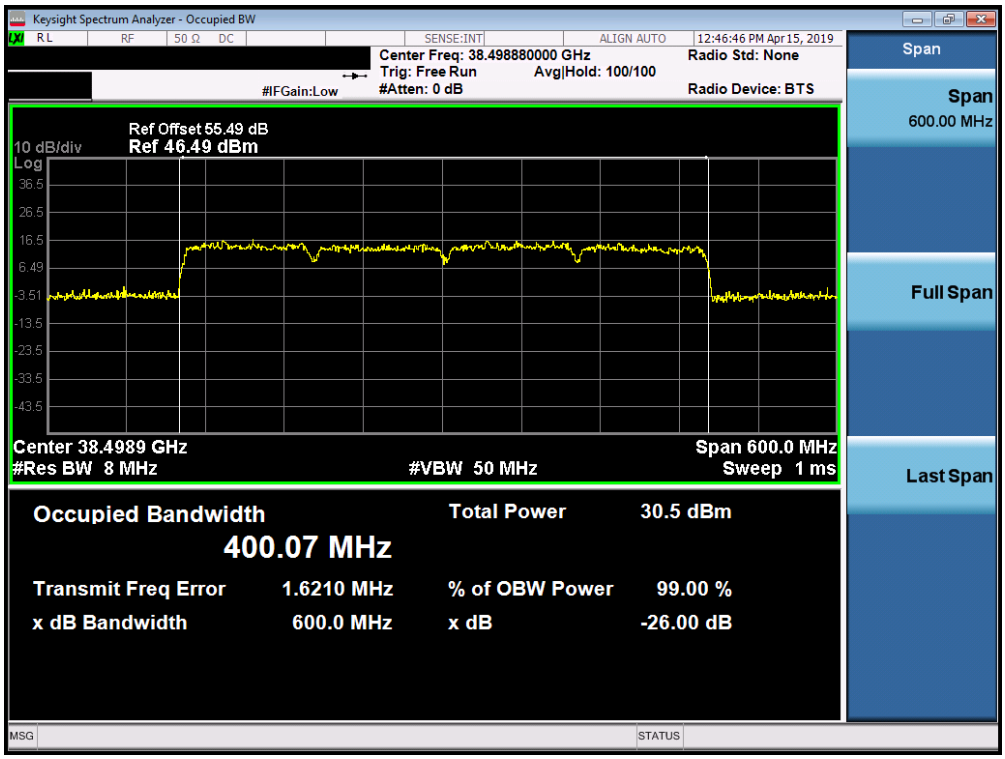
Plot 7-19. Occupied Bandwidth Plot (1CC-100MHz Bandwidth QPSK Mid Channel)



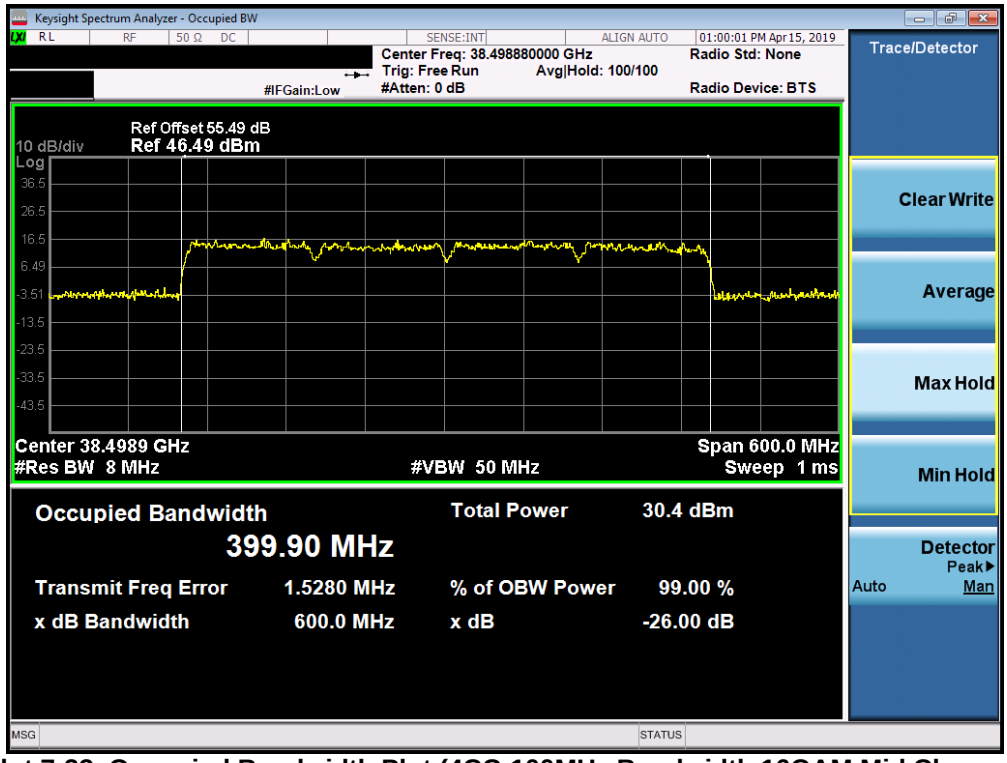
Plot 7-20. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 16QAM Mid Channel)



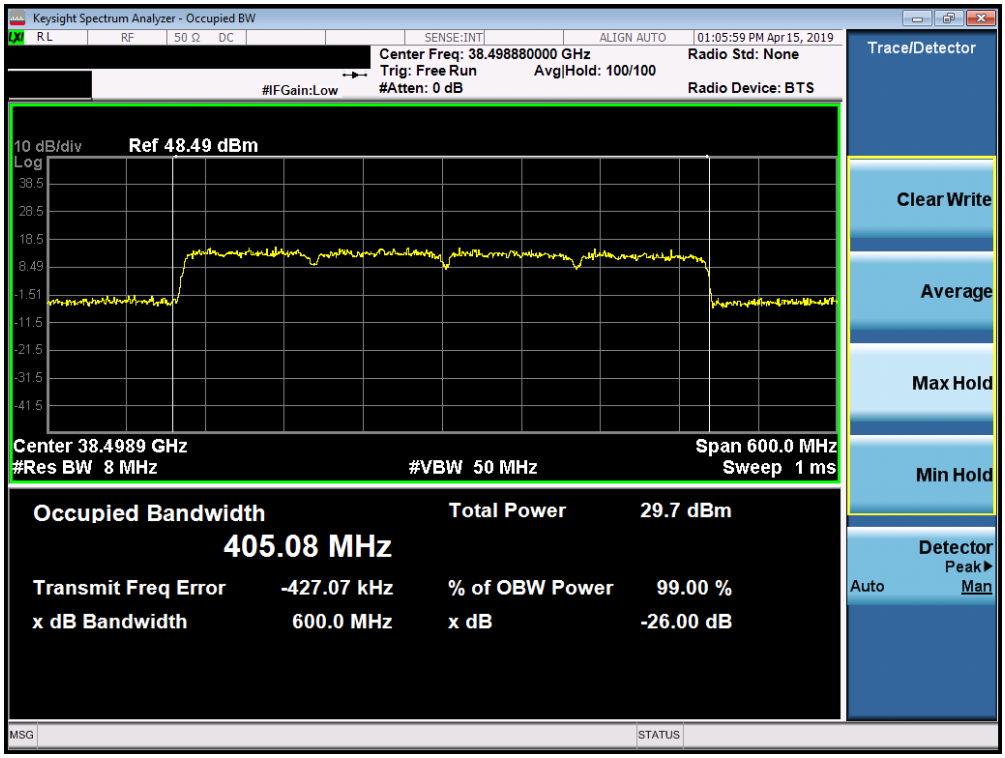
Plot 7-21. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 64QAM Mid Channel)



Plot 7-22. Occupied Bandwidth Plot (4CC-100MHz Bandwidth QPSK Mid Channel)



Plot 7-23. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 16QAM Mid Channel)

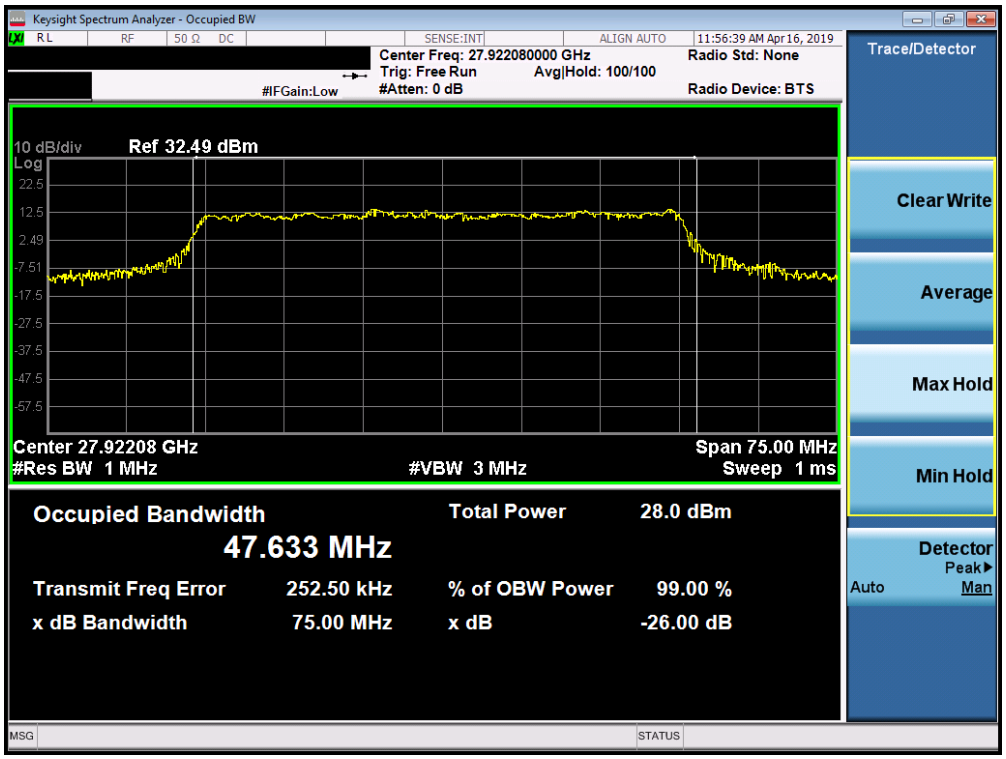


Plot 7-24. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 64QAM Mid Channel)

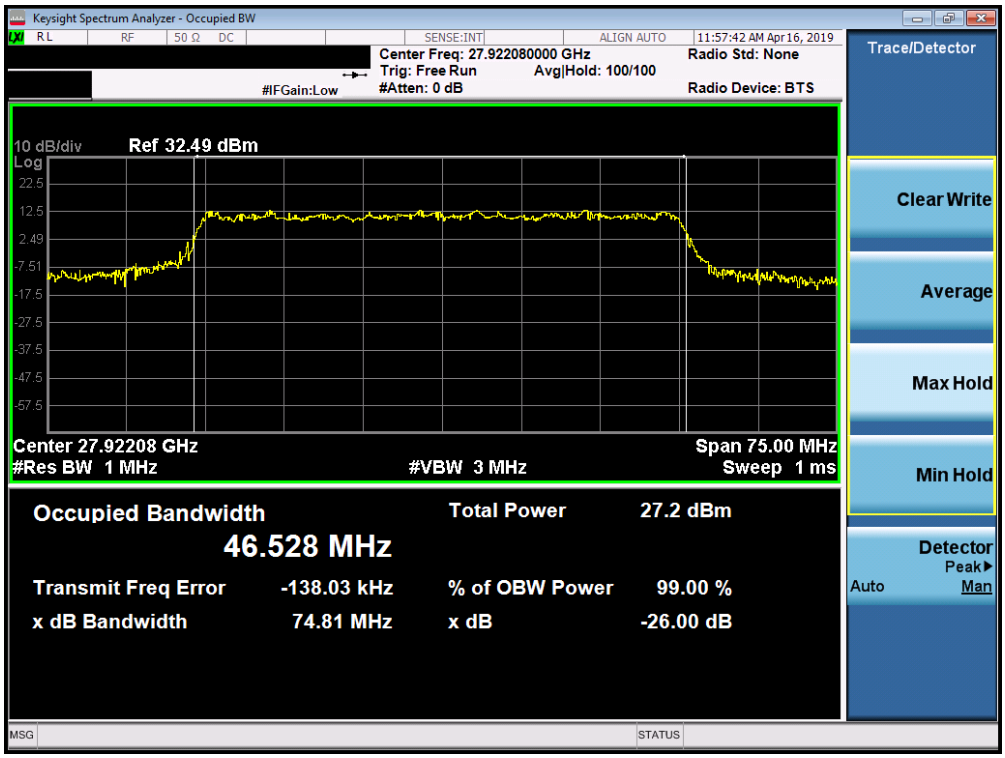
7.2.3 QTM1 Occupied Bandwidth n261

Channel	Total Bandwidth [MHz]	CCs Active	Modulation	Occupied Bandwidth [MHz]
Mid	50	1	QPSK	47.63
Mid	50	1	16QAM	46.53
Mid	50	1	64QAM	46.97
Mid	200	4	QPSK	199.26
Mid	200	4	16QAM	198.06
Mid	200	4	64QAM	198.72
Mid	100	1	QPSK	94.87
Mid	100	1	16QAM	94.88
Mid	100	1	64QAM	94.96
Mid	400	4	QPSK	397.28
Mid	400	4	16QAM	398.22
Mid	400	4	64QAM	431.67

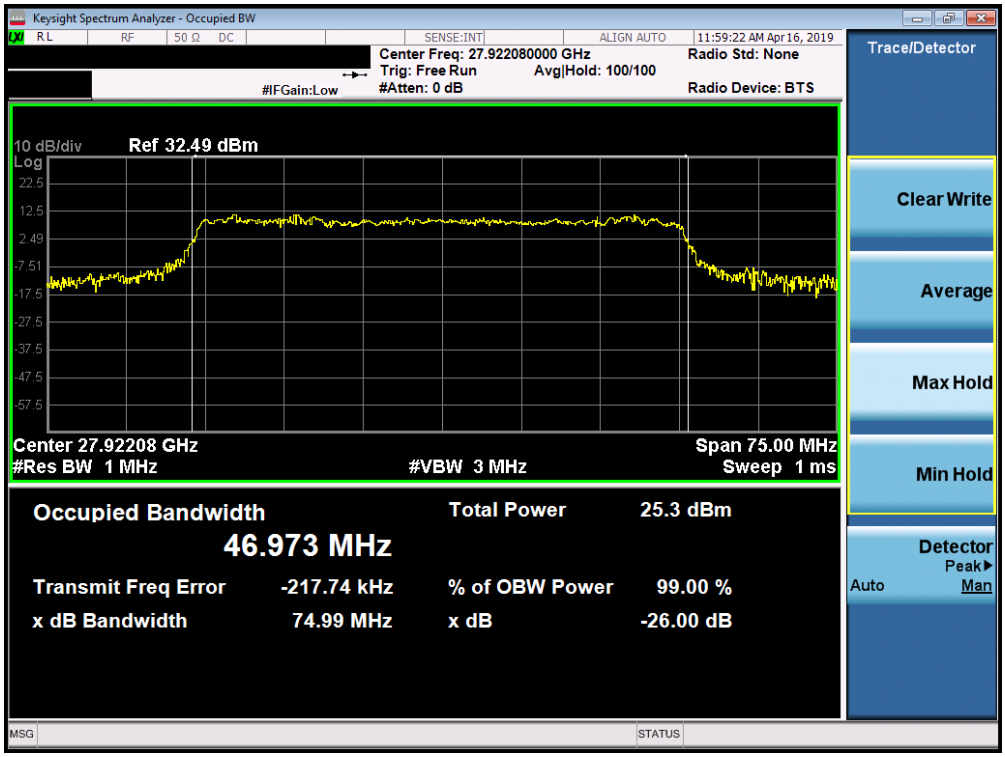
Table 7-4. QTM1 n261 Occupied Bandwidth Summary Data



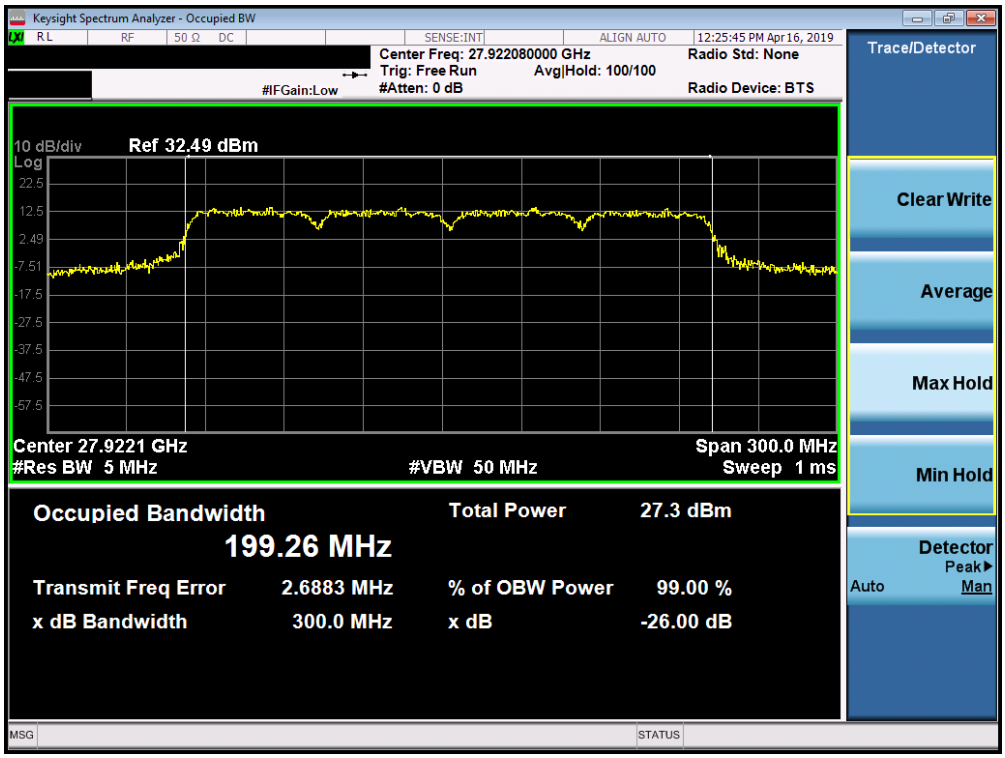
Plot 7-25. Occupied Bandwidth Plot (1CC-50MHz Bandwidth QPSK Mid Channel)



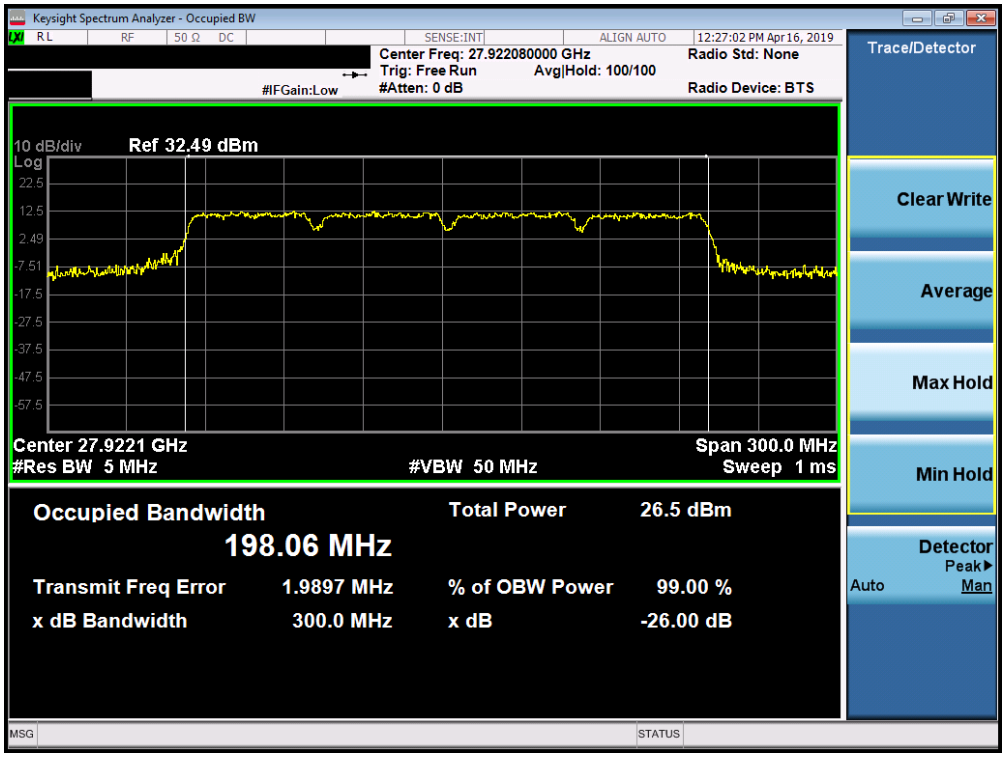
Plot 7-26. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 16QAM Mid Channel)



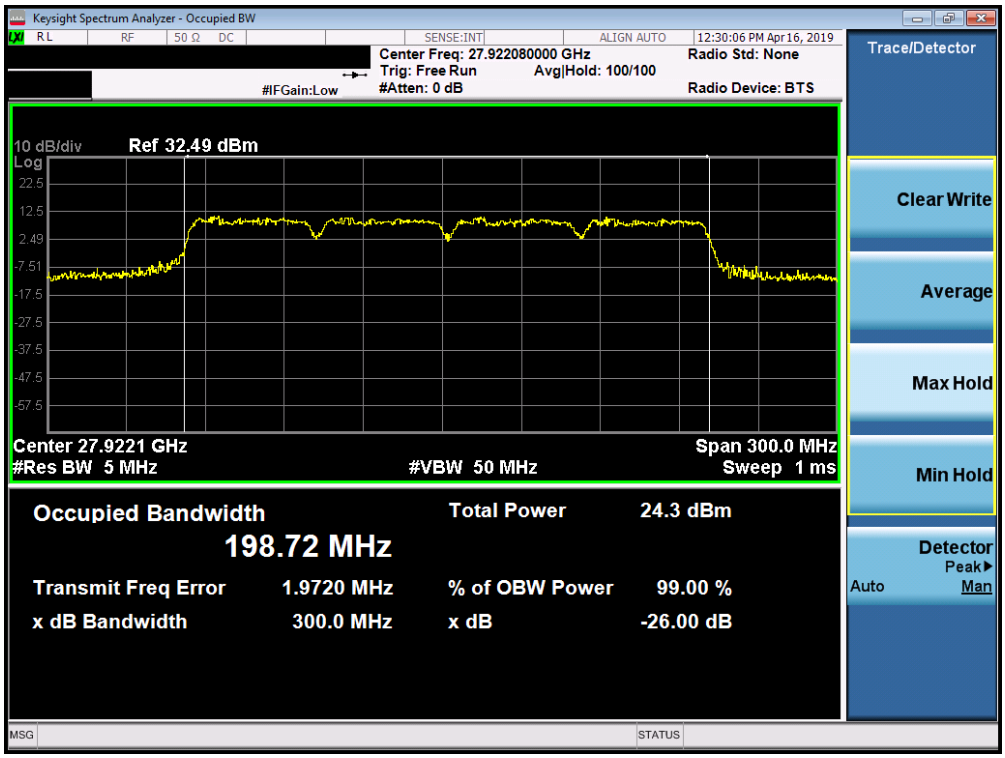
Plot 7-27. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 64QAM Mid Channel)



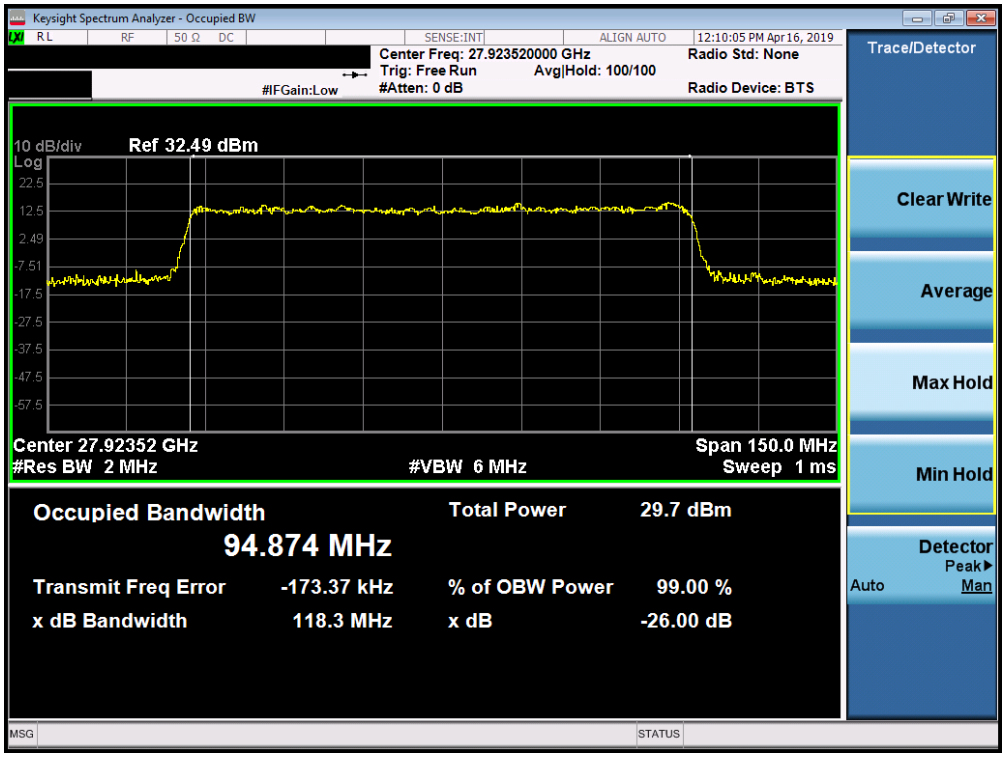
Plot 7-28. Occupied Bandwidth Plot (4CC-50MHz Bandwidth QPSK Mid Channel)



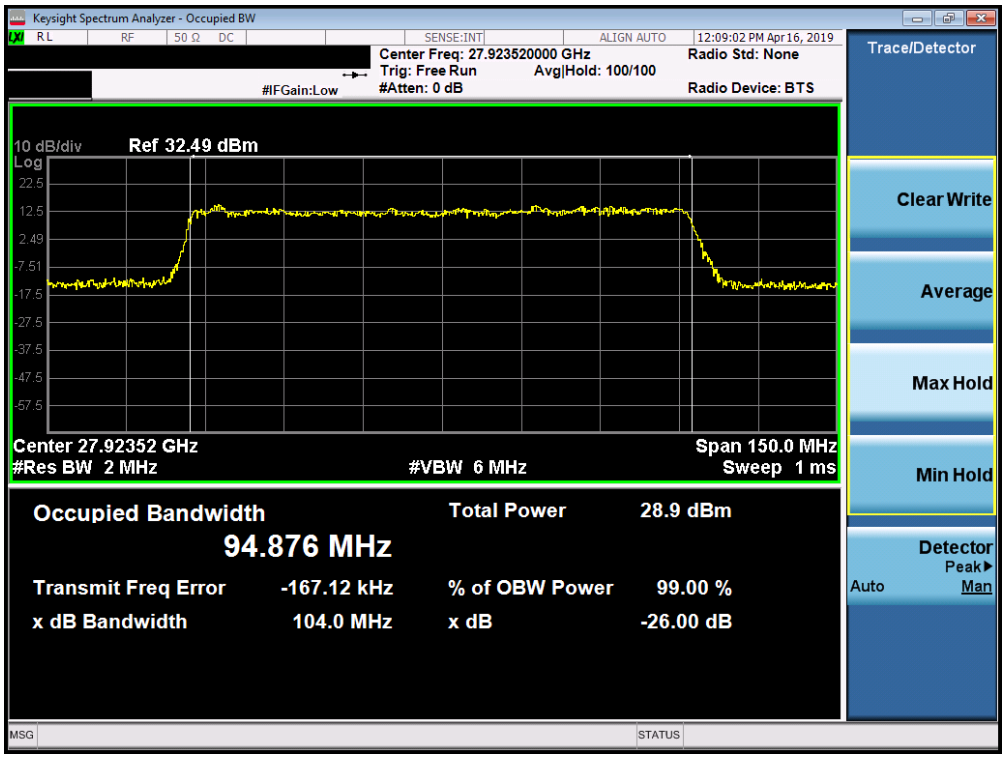
Plot 7-29. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 16QAM Mid Channel)



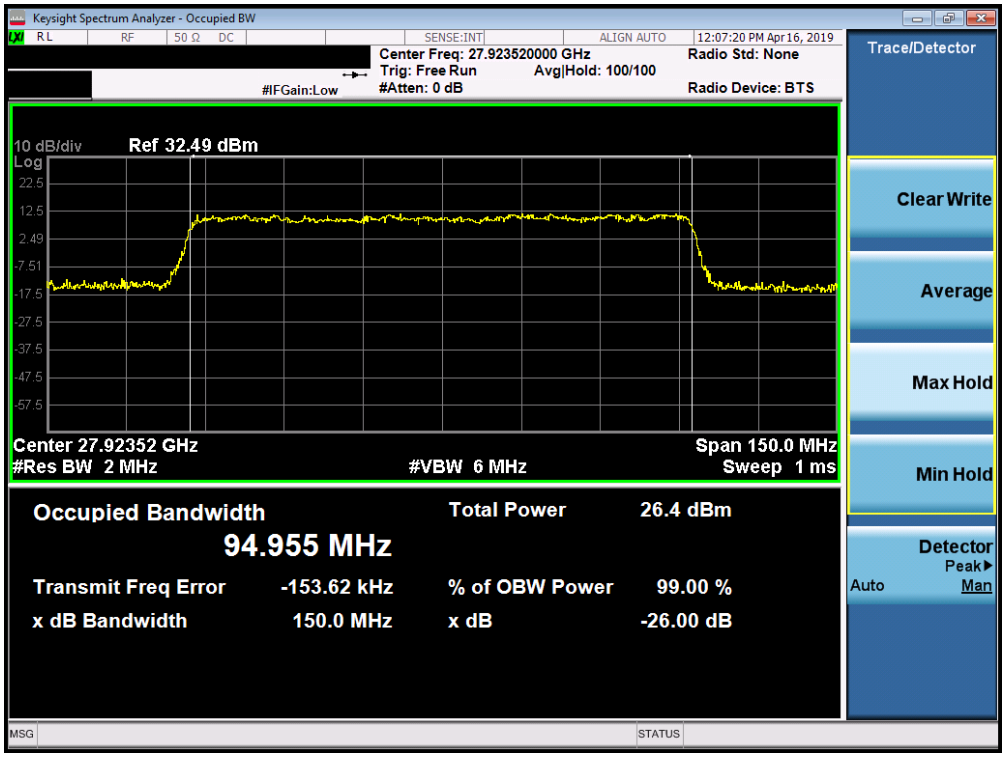
Plot 7-30. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 64QAM Mid Channel)



Plot 7-31. Occupied Bandwidth Plot (1CC-100MHz Bandwidth QPSK Mid Channel)



Plot 7-32. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 16QAM Mid Channel)



Plot 7-33. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 64QAM Mid Channel)

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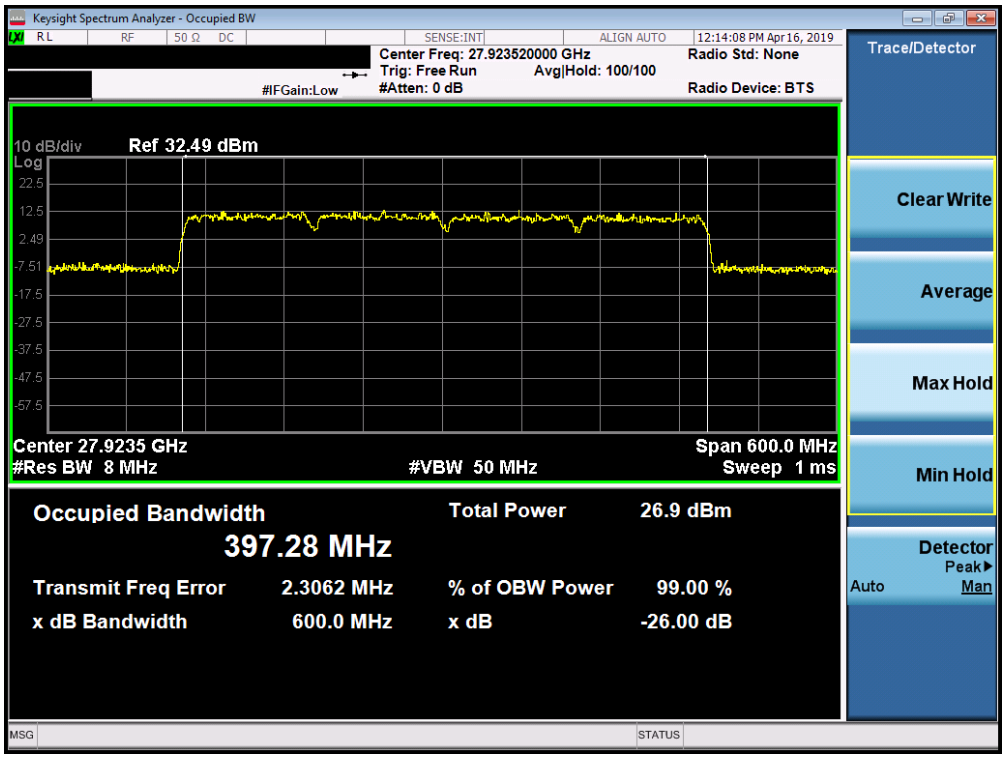
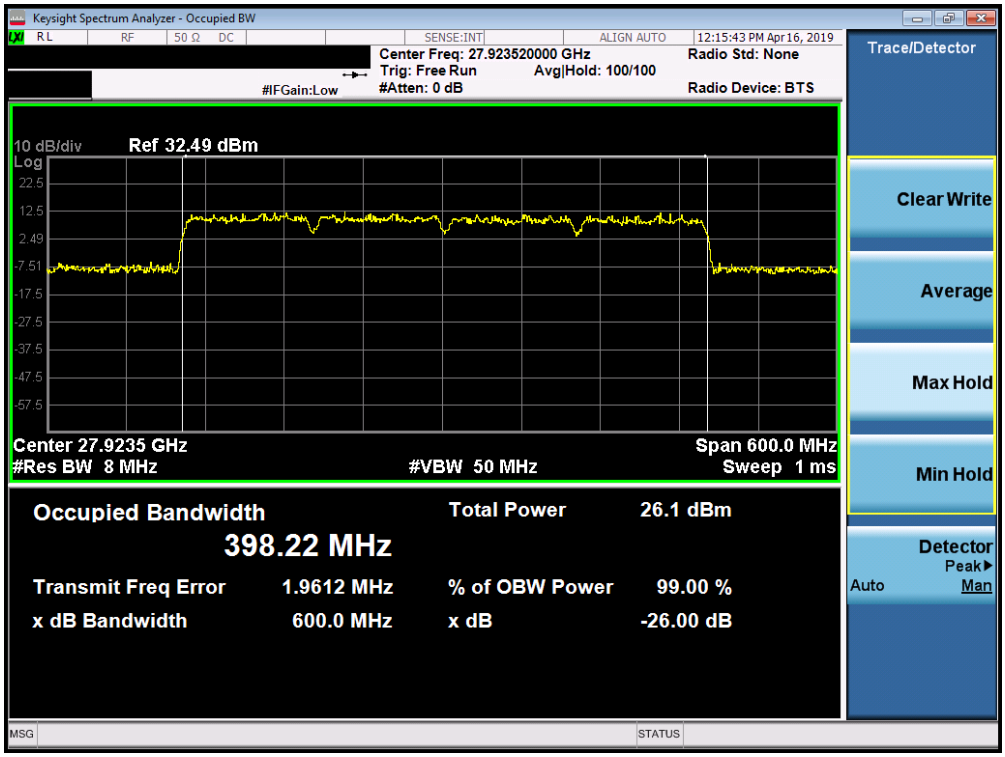
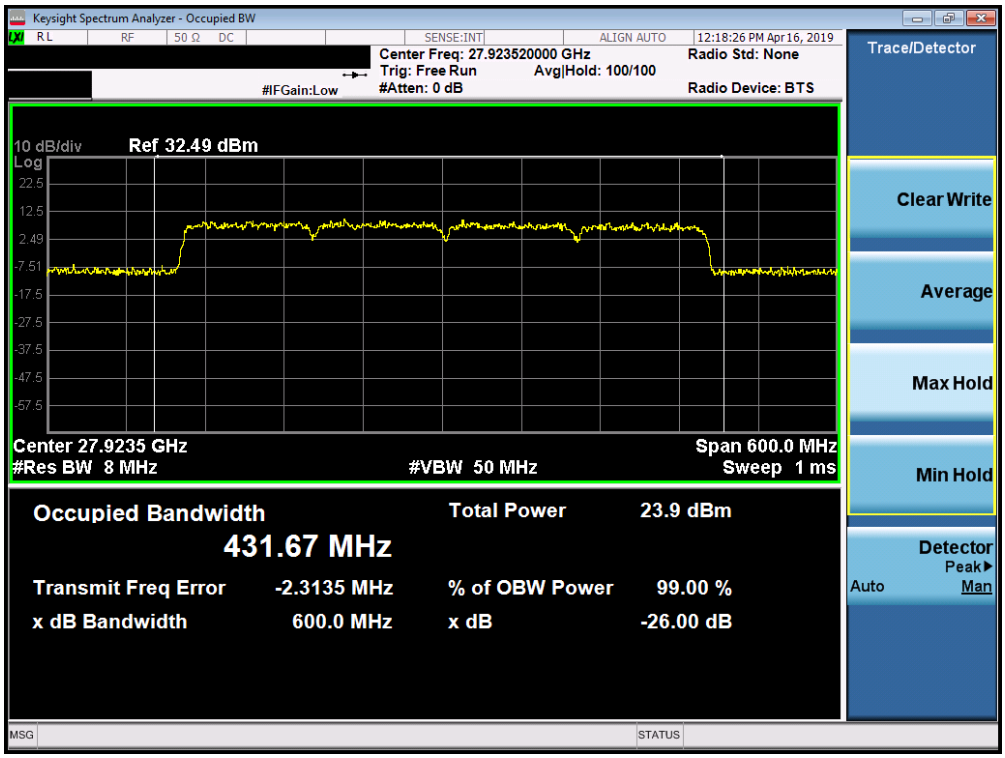


Plot 7-34. Occupied Bandwidth Plot (4CC-100MHz Bandwidth QPSK Mid Channel)



Plot 7-35. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 16QAM Mid Channel)

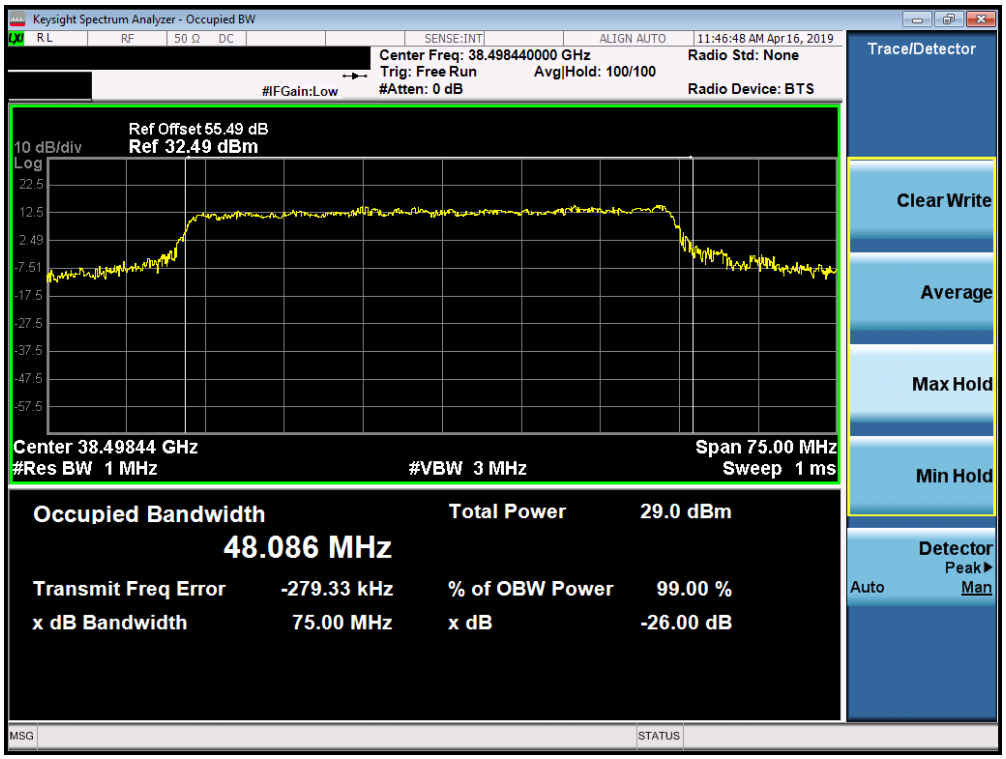


Plot 7-36. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 64QAM Mid Channel)

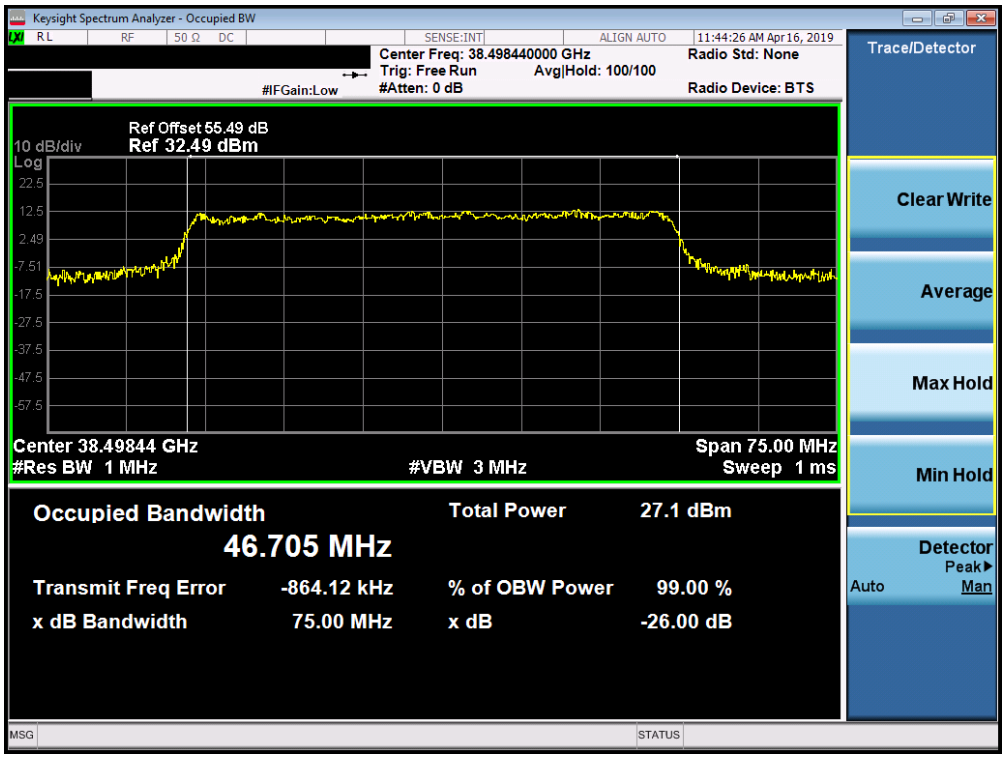
7.2.4 QTM1 Occupied Bandwidth n260

Channel	Total Bandwidth [MHz]	CCs Active	Modulation	Occupied Bandwidth [MHz]
Mid	50	1	QPSK	48.09
Mid	50	1	16QAM	46.71
Mid	50	1	64QAM	47.18
Mid	200	4	QPSK	198.69
Mid	200	4	16QAM	198.17
Mid	200	4	64QAM	198.87
Mid	100	1	QPSK	95.06
Mid	100	1	16QAM	95.35
Mid	100	1	64QAM	96.10
Mid	400	4	QPSK	401.09
Mid	400	4	16QAM	396.92
Mid	400	4	64QAM	426.50

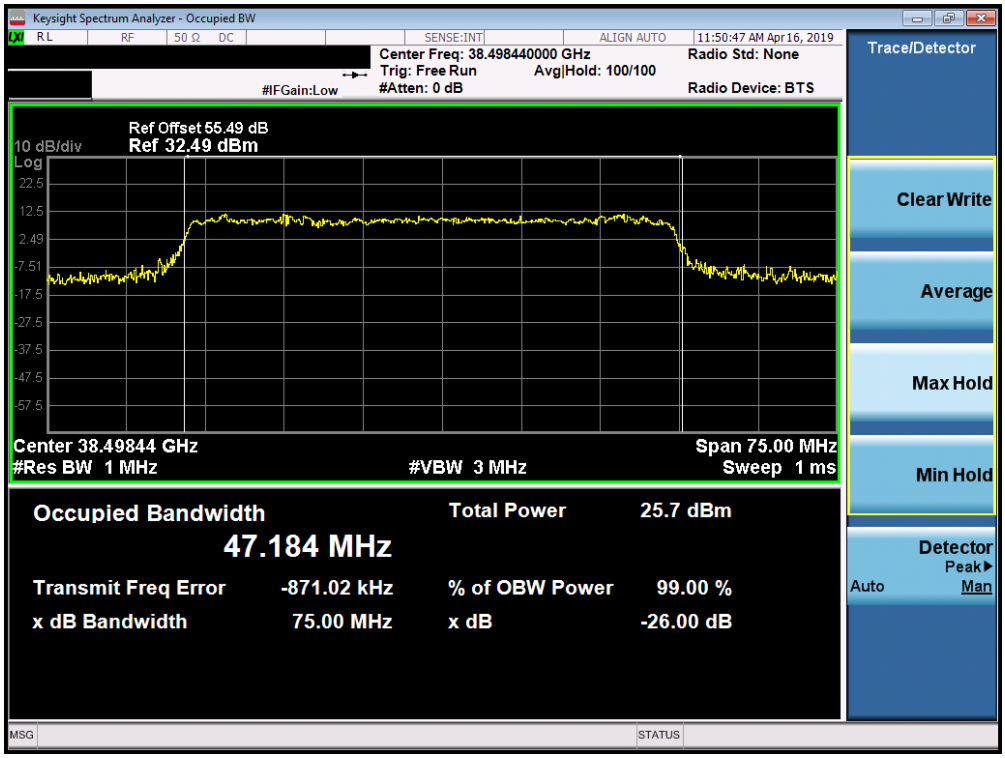
Table 7-5. QTM1 n260 Occupied Bandwidth Summary Data



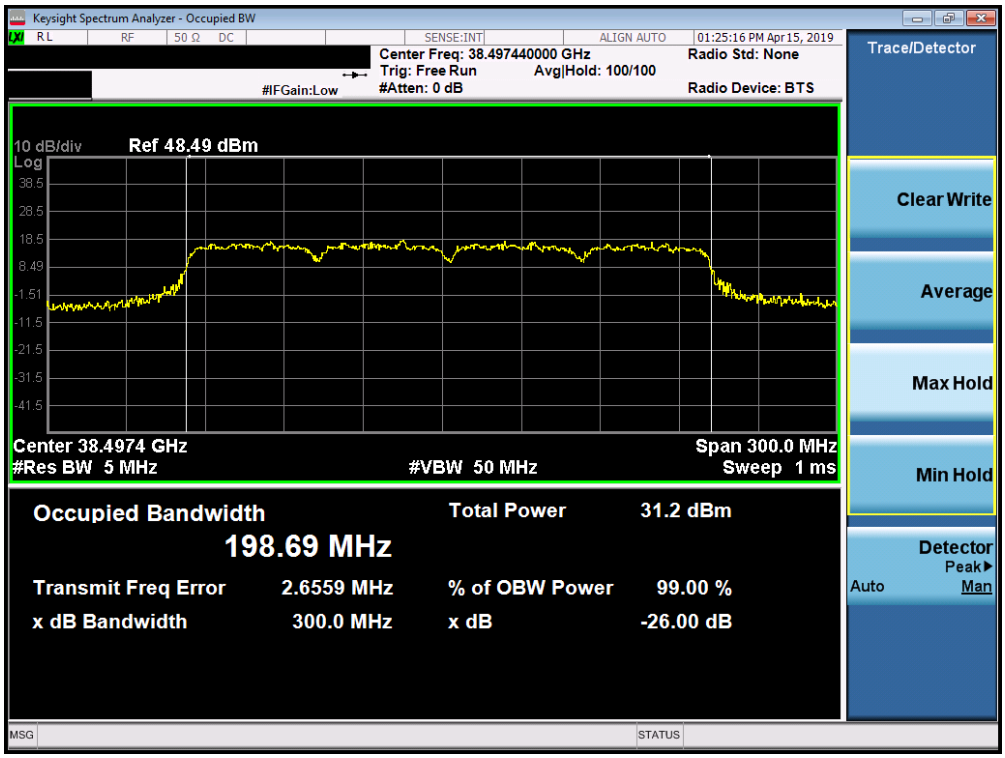
Plot 7-37. Occupied Bandwidth Plot (1CC-50MHz Bandwidth QPSK Mid Channel)



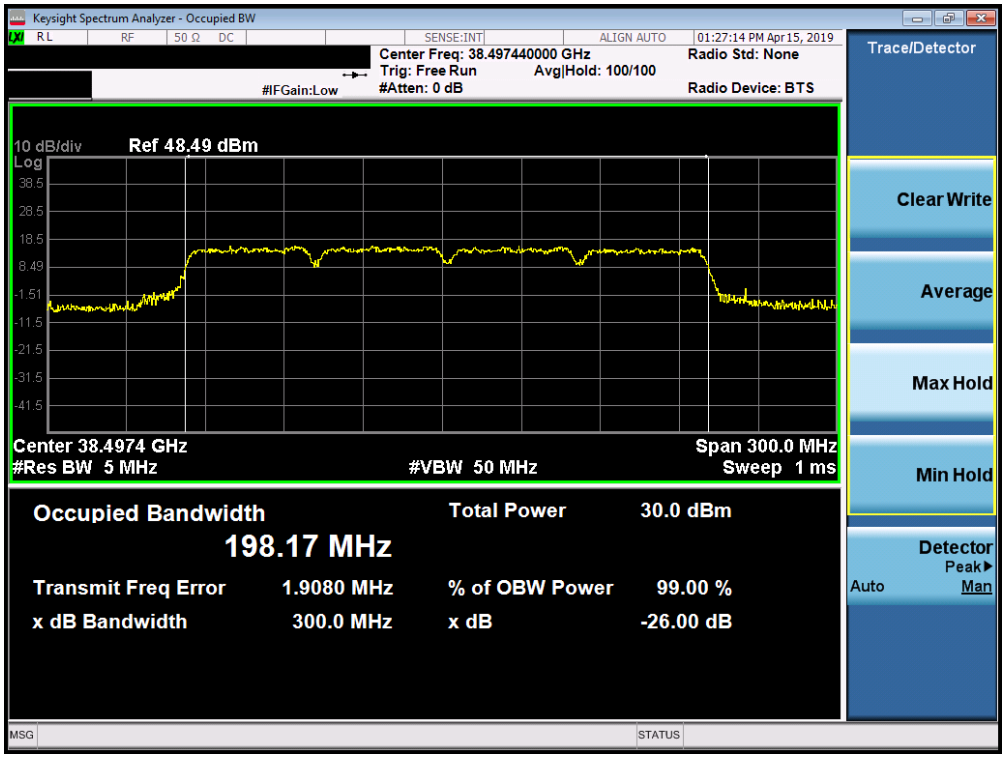
Plot 7-38. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 16QAM Mid Channel)



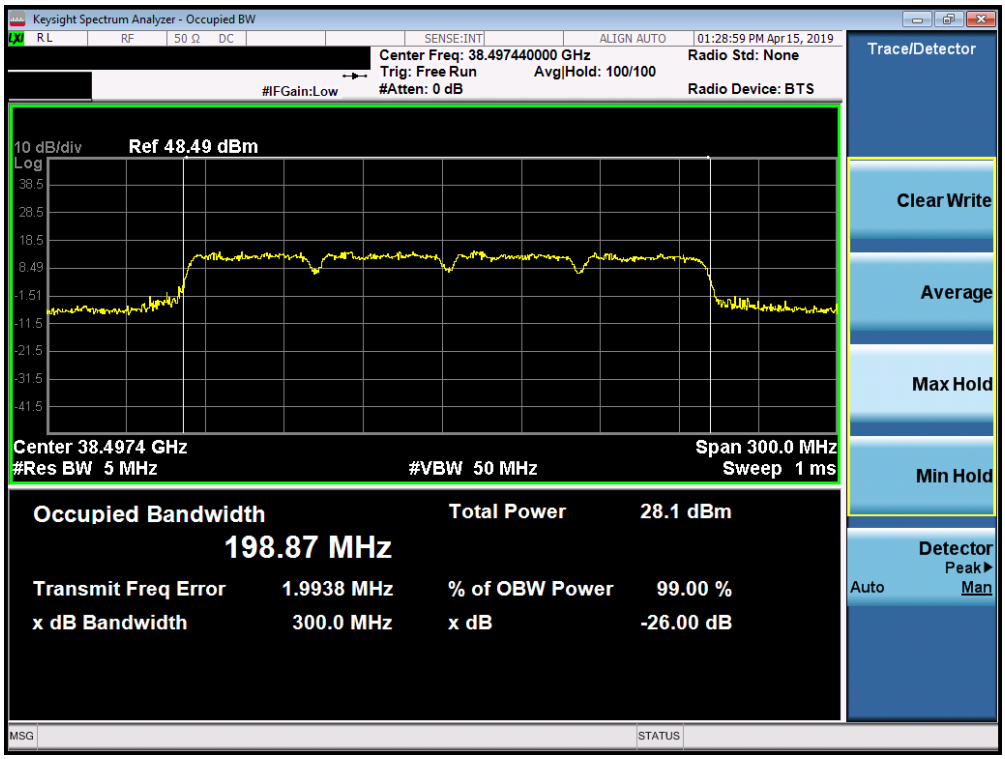
Plot 7-39. Occupied Bandwidth Plot (1CC-50MHz Bandwidth 64QAM Mid Channel)



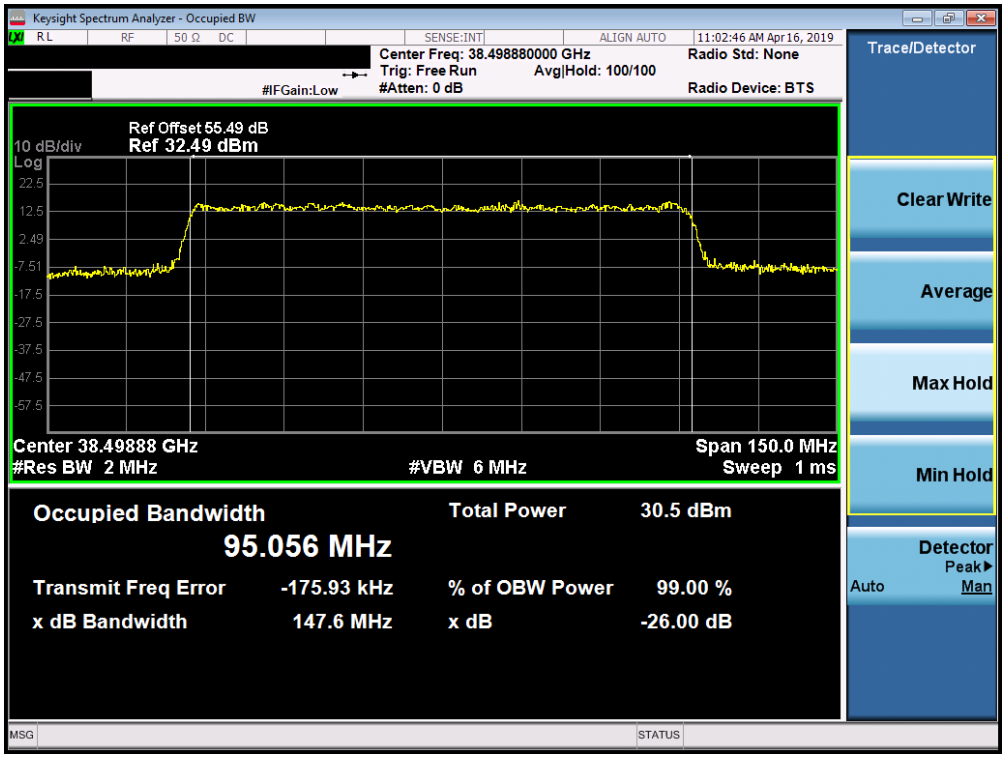
Plot 7-40. Occupied Bandwidth Plot (4CC-50MHz Bandwidth QPSK Mid Channel)



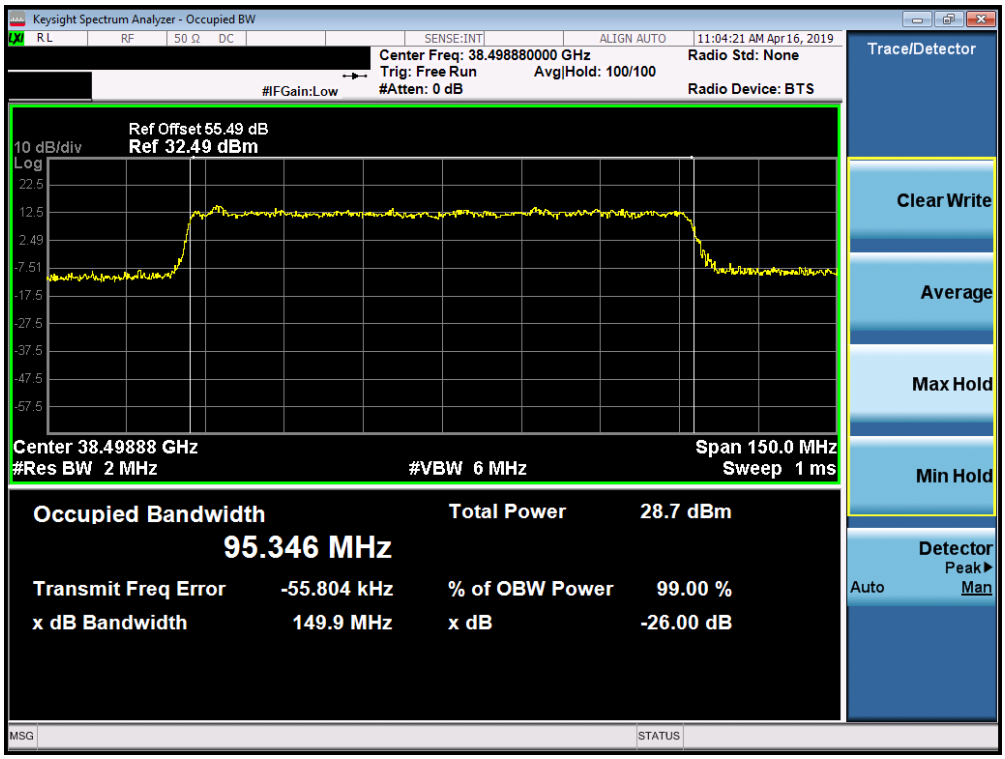
Plot 7-41. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 16QAM Mid Channel)



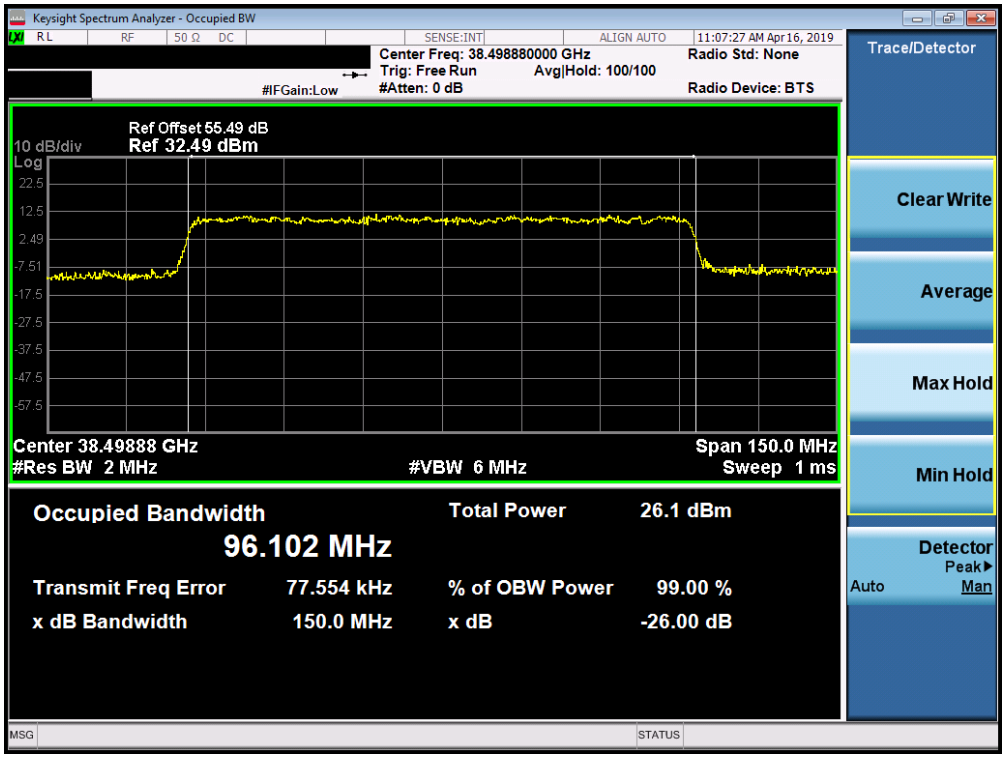
Plot 7-42. Occupied Bandwidth Plot (4CC-50MHz Bandwidth 64QAM Mid Channel)



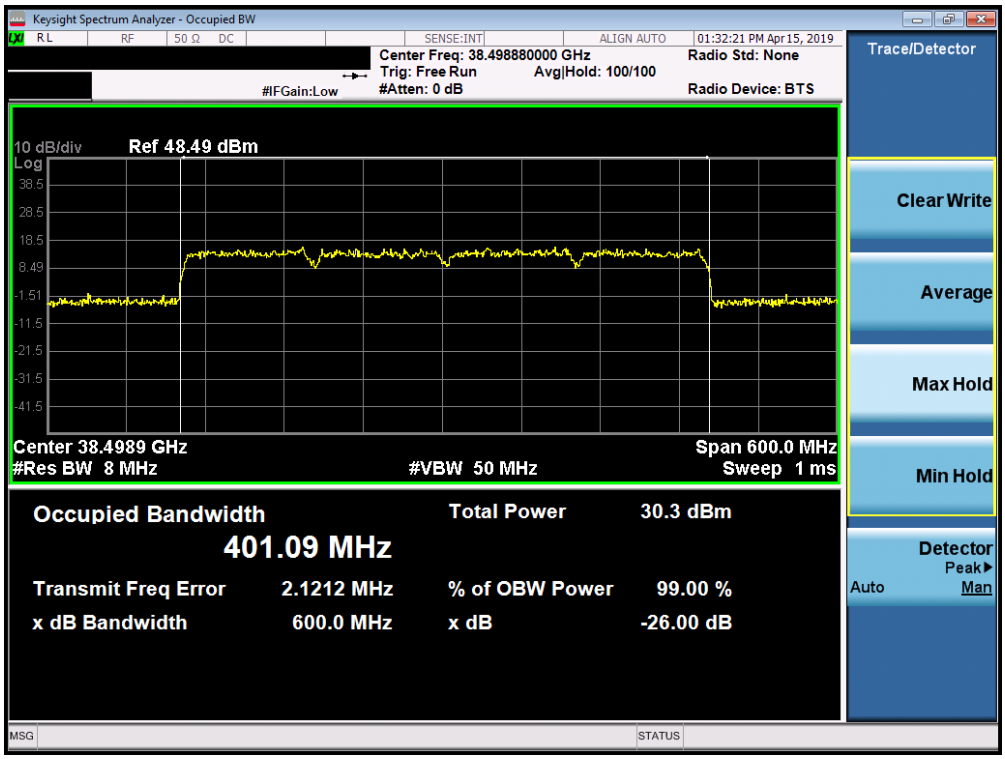
Plot 7-43. Occupied Bandwidth Plot (1CC-100MHz Bandwidth QPSK Mid Channel)



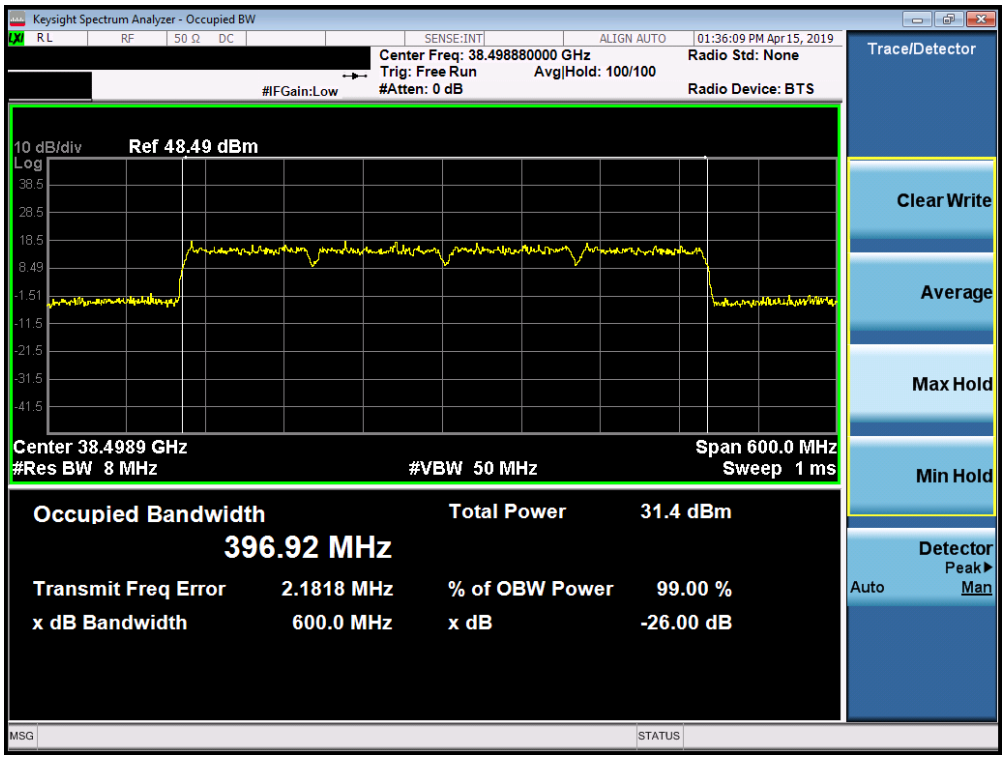
Plot 7-44. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 16QAM Mid Channel)



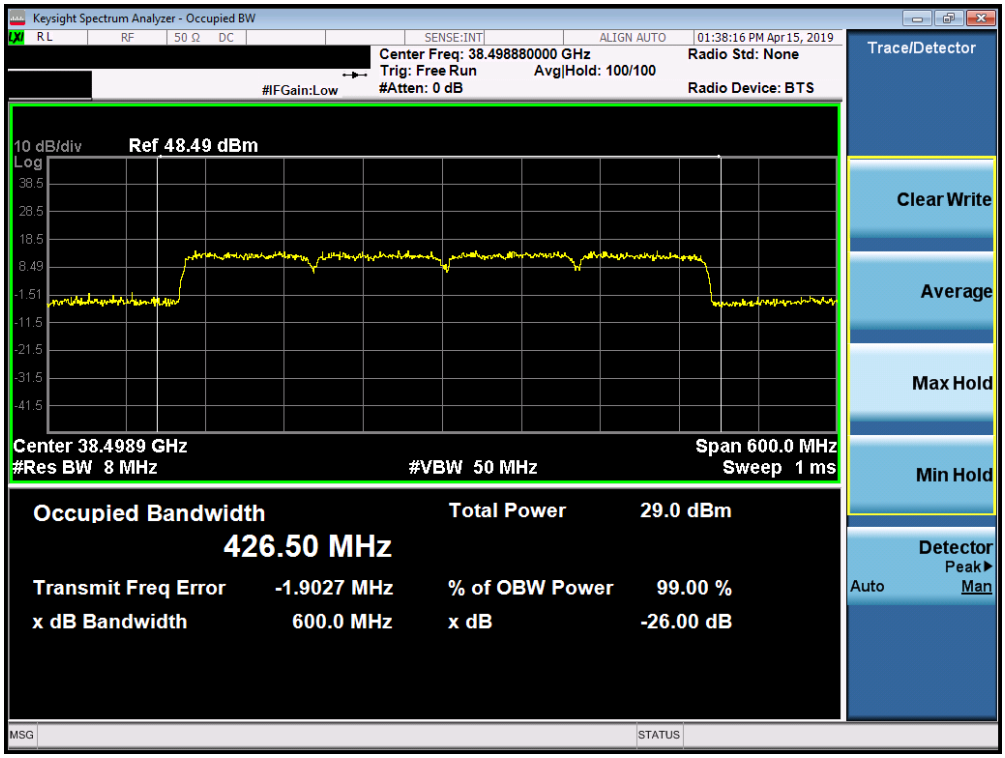
Plot 7-45. Occupied Bandwidth Plot (1CC-100MHz Bandwidth 64QAM Mid Channel)



Plot 7-46. Occupied Bandwidth Plot (4CC-100MHz Bandwidth QPSK Mid Channel)



Plot 7-47. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 16QAM Mid Channel)



Plot 7-48. Occupied Bandwidth Plot (4CC-100MHz Bandwidth 64QAM Mid Channel)

7.3 RF Output Power

§2.1046, §30.202

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

The average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

Test Procedures Used

ANSI C63.26-2015 Section 5.2.4.4.1

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 2x to 3x the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
8. Trace mode = trace averaging (RMS) over 100 sweeps
9. The trace was allowed to stabilize

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

3) EIRP measurements were taken at 1m test distance, which is in the far field of the mmWave signal based on the formula: R $\geq$ 2D^2/wavelength. Where D is the largest dimension of the antenna, D = 0.0445m, wavelength = 0.0107m, so far field threshold = 0.37m.

4) The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBµV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBµV/m) = Spectrum Analyzer Channel Power Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + 107.

5) Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

7.3.1 N261 QTM0 EIRP

Antenna	Bandwidth	CCs Active	Chan.	Channel Freq [GHz]	Modulation	RB Size	RB Offset	Beam ID	Ant. Pol. [H/V]	Ant. Height [cm]	Turn Table Azimuth [degree]	SISO EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
QTM0	50	1	L	27534.84	QPSK	1	31	27	H	150	193	22.27	24.80	43.00	-18.20
								155	V	150	193	21.24			
			M	27922.08		32	0	27	H	150	196	22.31	25.61	43.00	-17.39
								155	V	150	196	22.87			
			H	28319.52		1	31	27	H	150	199	22.81	25.34	43.00	-17.66
								155	V	150	199	21.78			
			L	27534.84	16QAM	1	31	27	H	150	193	20.88	23.85	43.00	-19.15
								155	V	150	193	20.80			
			M	27922.08		32	0	27	H	150	196	21.59	24.48	43.00	-18.52
								155	V	150	196	21.35			
			H	28319.52		1	31	27	H	150	199	21.81	24.48	43.00	-18.52
								155	V	150	199	21.09			
			L	27534.84	64QAM	1	31	27	H	150	193	19.55	22.41	43.00	-20.59
								155	V	150	193	19.25			
			M	27922.08		32	0	27	H	150	196	20.73	23.43	43.00	-19.57
								155	V	150	196	20.08			
			H	28319.52		1	31	27	H	150	199	19.60	22.78	43.00	-20.22
								155	V	150	199	19.93			
		4	M	27924.96	QPSK	1	16	27	H	150	196	19.04	21.63	43.00	-21.37
								155	V	150	196	18.16			
					16-QAM	1	16	27	H	150	196	18.02	21.19	43.00	-21.81
								155	V	150	196	18.33			
					64-QAM	1	16	27	H	150	196	17.79	20.55	43.00	-22.45
								155	V	150	196	17.27			
	100	1	L	27559.32	QPSK	1	65	27	H	150	194	22.69	25.47	43.00	-17.53
								155	V	150	194	22.21			
			M	27923.52		1	65	27	H	150	196	22.66	25.62	43.00	-17.38
								155	V	150	196	22.55			
			H	28292.16		1	65	27	H	150	198	22.41	25.17	43.00	-17.83
								155	V	150	198	21.89			
			L	27559.32	16QAM	1	31	27	H	150	194	21.81	24.56	43.00	-18.44
								155	V	150	194	21.27			
			M	27923.52		66	0	27	H	150	196	21.69	24.70	43.00	-18.30
								155	V	150	196	21.69			
			H	28292.16		1	0	27	H	150	198	21.98	24.46	43.00	-18.54
								155	V	150	198	20.85			
			L	27559.32	64QAM	1	31	27	H	150	194	19.80	22.85	43.00	-20.15
								155	V	150	194	19.88			
			M	27923.52		1	0	27	H	150	196	20.25	22.94	43.00	-20.06
								155	V	150	196	19.59			
			H	28292.16		1	0	27	H	150	198	20.01	22.79	43.00	-20.21
								155	V	150	198	19.54			
		4	M	27926.52	QPSK	1	31	27	H	150	196	19.52	22.11	43.00	-20.89
								155	V	150	196	18.64			
					16-QAM	1	31	27	H	150	196	18.34	20.97	43.00	-22.03
								155	V	150	196	17.54			
					64-QAM	1	31	27	H	150	196	16.77	19.39	43.00	-23.61
								155	V	150	196	15.96			

Table 7-6. N261 QTM0 EIRP Summary Data

7.3.2 N261 QTM1 EIRP

Antenna	Bandwidth	CCs Active	Chan.	Channel Freq [GHz]	Modulation	RB Size	RB Offset	Beam ID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	SISO EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
QTM1	50	1	L	27534.84	QPSK	1	31	23	H	150	28	20.87	23.85	43.00	-19.15
								151	V	150	28	20.81			
			M	27922.08		32	0	23	H	150	33	22.22	25.17	43.00	-17.83
								151	V	150	33	22.10			
			H	28319.52		1	31	23	H	150	31	22.48	25.34	43.00	-17.66
								151	V	150	31	22.18			
			L	27534.84	16QAM	1	31	23	H	150	28	20.17	23.09	43.00	-19.91
								151	V	150	28	19.99			
			M	27922.08		32	0	23	H	150	33	20.36	23.81	43.00	-19.19
								151	V	150	33	21.19			
			H	28319.52		1	31	23	H	150	31	20.86	23.67	43.00	-19.33
								151	V	150	31	20.44			
			L	27534.84	64QAM	1	31	23	H	150	28	19.73	22.66	43.00	-20.34
								151	V	150	28	19.57			
			M	27922.08		1	31	23	H	150	33	19.13	22.47	43.00	-20.53
								151	V	150	33	19.77			
			H	28319.52		1	31	23	H	150	31	19.37	22.36	43.00	-20.64
								151	V	150	31	19.32			
		4	M	27924.96	QPSK	1	31	23	H	150	33	19.25	23.44	43.00	-19.56
								151	V	150	33	21.35			
					16-QAM	1	31	23	H	150	33	18.37	22.53	43.00	-20.47
								151	V	150	33	20.43			
					64-QAM	1	31	23	H	150	33	17.40	20.89	43.00	-22.11
								151	V	150	33	18.31			
	100	1	L	27559.32	QPSK	1	0	23	H	150	25	23.57	25.97	43.00	-17.03
								151	V	150	25	22.26			
			M	27923.52		66	0	23	H	150	34	22.69	25.93	43.00	-17.07
								151	V	150	34	23.14			
			H	28292.16		1	31	23	H	150	23	21.87	25.44	43.00	-17.56
								151	V	150	23	22.92			
			L	27559.32	16QAM	1	31	23	H	150	25	20.81	24.04	43.00	-18.96
								151	V	150	25	21.25			
			M	27923.52		1	65	23	H	150	34	21.52	24.66	43.00	-18.34
								151	V	150	34	21.77			
			H	28292.16		1	0	23	H	150	23	21.08	24.25	43.00	-18.75
								151	V	150	23	21.40			
			L	27559.32	64QAM	1	31	23	H	150	25	18.72	22.07	43.00	-20.93
								151	V	150	25	19.37			
			M	27923.52		66	0	23	H	150	34	19.43	22.60	43.00	-20.40
								151	V	150	34	19.74			
			H	28292.16		1	0	23	H	150	23	20.00	23.04	43.00	-19.96
								151	V	150	23	20.05			
		4	M	27926.52	QPSK	1	31	23	H	150	34	19.03	22.65	43.00	-20.35
								151	V	150	34	20.17			
					16-QAM	1	31	23	H	150	34	18.16	21.71	43.00	-21.29
								151	V	150	34	19.18			
					64-QAM	1	31	23	H	150	34	16.32	19.94	43.00	-23.06
								151	V	150	34	17.47			

Table 7-7. N261 QTM1 EIRP Summary Data

7.3.3 N260 QTM0 EIRP

Antenna	Bandwidth	CCs Active	Chan.	Channel Freq [GHz]	Modulation	RB Size	RB Offset	Beam ID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	SISO EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
QTM0	50	1	L	37027.32	QPSK	1	0	27	H	150	182	21.22	23.19	43.00	-19.81
								155	V	150	182	18.82			
			M	38497.44		1	0	27	H	150	188	21.41	23.59	43.00	-19.41
								155	V	150	188	19.55			
			H	39966.24		1	0	27	H	150	186	21.79	23.91	43.00	-19.09
								155	V	150	186	19.79			
			L	37027.32	16QAM	1	0	27	H	150	182	19.74	21.20	43.00	-21.80
								155	V	150	182	15.76			
			M	38497.44		32	0	27	H	150	188	20.04	21.34	43.00	-21.66
								155	V	150	188	15.48			
			H	39966.24		1	0	27	H	150	186	19.01	20.66	43.00	-22.34
								155	V	150	186	15.67			
			L	37027.32	64QAM	1	0	27	H	150	182	17.03	18.83	43.00	-24.17
								155	V	150	182	14.14			
			M	38497.44		1	0	27	H	150	188	17.28	19.45	43.00	-23.55
								155	V	150	188	15.39			
			H	39966.24		1	0	27	H	150	186	17.86	19.65	43.00	-23.35
								155	V	150	186	14.95			
		4	M	38499.96	QPSK	1	0	27	H	150	188	17.83	21.25	43.00	-21.75
								155	V	150	188	18.62			
					16-QAM	1	0	27	H	150	188	16.48	19.97	43.00	-23.03
								155	V	150	188	17.40			
					64-QAM	1	0	27	H	150	188	15.07	19.68	43.00	-23.32
								155	V	150	188	17.83			
	100	1	L	37051.8	QPSK	1	31	27	H	150	186	21.03	23.10	43.00	-19.90
								155	V	150	186	18.90			
			M	38498.88		1	0	27	H	150	190	21.71	23.83	43.00	-19.17
								155	V	150	190	19.70			
			H	39949.92		1	0	27	H	150	191	20.13	22.78	43.00	-20.22
								155	V	150	191	19.38			
			L	37051.8	16QAM	1	31	27	H	150	186	20.43	22.49	43.00	-20.51
								155	V	150	186	18.27			
			M	38498.88		1	0	27	H	150	190	20.67	22.82	43.00	-20.18
								155	V	150	190	18.74			
			H	39949.92		1	0	27	H	150	191	19.38	22.10	43.00	-20.90
								155	V	150	191	18.78			
			L	37051.8	64QAM	1	31	27	H	150	186	18.40	20.36	43.00	-22.64
								155	V	150	186	15.95			
			M	38498.88		1	0	27	H	150	190	18.42	20.93	43.00	-22.07
								155	V	150	190	17.35			
			H	39949.92		1	0	27	H	150	191	17.10	19.83	43.00	-23.17
								155	V	150	191	16.51			
		4	M	38501.88	QPSK	1	0	27	H	150	190	17.40	20.21	43.00	-22.79
								155	V	150	190	16.98			
					16-QAM	1	0	27	H	150	190	16.51	19.70	43.00	-23.30
								155	V	150	190	16.86			
					64-QAM	1	0	27	H	150	190	14.96	18.05	43.00	-24.95
								155	V	150	190	15.12			

Table 7-8. N260 QTM0 EIRP Summary Data

7.3.4 N260 QTM1 EIRP

Antenna	Bandwidth	CCs Active	Chan.	Channel Freq [GHz]	Modulation	RB Size	RB Offset	Beam ID	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	SISO EIRP [dBm]	MIMO EIRP [dBm]	Limit [dBm]	Margin [dB]
QTM1	50	1	L	37027.32	QPSK	1	0	23	H	150	19	19.53	22.48	43.00	-20.52
								151	V	150	19	19.41			
			M	38497.44		1	0	23	H	150	29	21.49	25.22	43.00	-17.78
								151	V	150	29	22.83			
			H	39966.24		1	0	23	H	150	21	19.78	24.17	43.00	-18.83
								151	V	150	21	22.20			
			L	37027.32	16QAM	1	0	23	H	150	19	18.86	21.62	43.00	-21.38
								151	V	150	19	18.35			
			M	38497.44		1	0	23	H	150	29	19.17	23.36	43.00	-19.64
								151	V	150	29	21.27			
			H	39966.24		1	0	23	H	150	21	19.04	23.26	43.00	-19.74
								151	V	150	21	21.19			
			L	37027.32	64QAM	1	0	23	H	150	19	16.61	19.80	43.00	-23.20
								151	V	150	19	16.97			
			M	38497.44		1	0	23	H	150	29	17.39	21.45	43.00	-21.55
								151	V	150	29	19.29			
			H	39966.24		1	0	23	H	150	21	17.98	22.19	43.00	-20.81
								151	V	150	21	20.13			
		4	M	38499.96	QPSK	1	0	23	H	150	29	16.87	20.93	43.00	-22.07
								151	V	150	29	18.76			
					16-QAM	1	0	23	H	150	29	15.48	19.90	43.00	-23.10
								151	V	150	29	17.96			
					64-QAM	1	0	23	H	150	29	13.93	18.49	43.00	-24.51
								151	V	150	29	16.62			
	100	1	L	37051.8	QPSK	1	31	23	H	150	22	21.95	24.90	43.00	-18.10
								151	V	150	22	21.83			
			M	38498.88		1	31	23	H	150	24	21.50	25.27	43.00	-17.73
								151	V	150	24	22.90			
			H	39949.92		1	65	23	H	150	21	20.44	23.54	43.00	-19.46
								151	V	150	21	20.61			
			L	37051.8	16QAM	1	31	23	H	150	22	18.97	22.13	43.00	-20.87
								151	V	150	22	19.26			
			M	38498.88		1	0	23	H	150	24	20.49	24.37	43.00	-18.63
								151	V	150	24	22.08			
			H	39949.92		1	0	23	H	150	21	19.74	22.77	43.00	-20.23
								151	V	150	21	19.79			
			L	37051.8	64QAM	1	0	23	H	150	22	17.39	20.37	43.00	-22.63
								151	V	150	22	17.32			
			M	38498.88		1	0	23	H	150	24	18.79	22.32	43.00	-20.68
								151	V	150	24	19.78			
			H	39949.92		1	0	23	H	150	21	17.61	20.68	43.00	-22.32
								151	V	150	21	17.73			
		4	M	38501.88	QPSK	1	31	23	H	150	24	17.02	20.80	43.00	-22.20
								151	V	150	24	18.44			
					16-QAM	1	31	23	H	150	24	15.93	19.87	43.00	-23.13
								151	V	150	24	17.62			
					64-QAM	1	31	23	H	150	24	14.56	18.57	43.00	-24.43
								151	V	150	24	16.37			

Table 7-9. N260 QTM1 EIRP Summary Data

7.4 Radiated Spurious and Harmonic Emissions

§2.1051 §30.203

Test Overview

Out of band emissions were scanned from 30MHz to 100GHz in a radiated test setup with the EUT operating at maximum duty cycle and power. Spurious emission plots were obtained for Low, Mid, and High operating channels. All modulations and applicable CC settings were investigated to determine worst case condition.

The conductive power or total radiated power of any emissions outside a licensee's frequency block shall be -13dBm/1MHz.

Test Procedure Used

ANSI C63.26-2015 Section 5.7.4
ANSI C63.26-2015 Section 6.4

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 100 GHz for n261 and 200GHz for n260. Several plots are used to show investigations in this entire span.
2. Detector = RMS
3. Trace mode = trace average
4. Sweep time = auto couple
5. Number of sweep points ≥ 2 x Span/RBW
6. The trace was allowed to stabilize
7. RBW = 1MHz, VBW = 3MHz

Test Notes

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits.

3) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.

4) The plots from 1-100GHz show corrected average EIRP levels. Plots below 1GHz are corrected field strength levels. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBμV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBμV/m) = Spectrum Analyzer Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + Harmonic Mixer Conversion Loss (dB) + 107. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement. For measurements > 40GHz, Harmonic Mixer Conversion Loss was also applied to the spectrum analyzer.

5) Emissions below 18GHz were measured at a 3 meter test distance, while emissions above 18GHz were measured at the appropriate far field distance. The far field of the mmWave signal is based on formula: R > 2D^2/wavelength, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna.

Frequency Range (GHz)	Wavelength (mm)	Far Field Distance (m)	Measurement Distance (m)
18-40	7.49	0.67	1
40-60	5.00	1.36	1.5
60-90	3.33	0.86	1
90-140	2.14	0.57	1
140-200	1.50	0.31	1

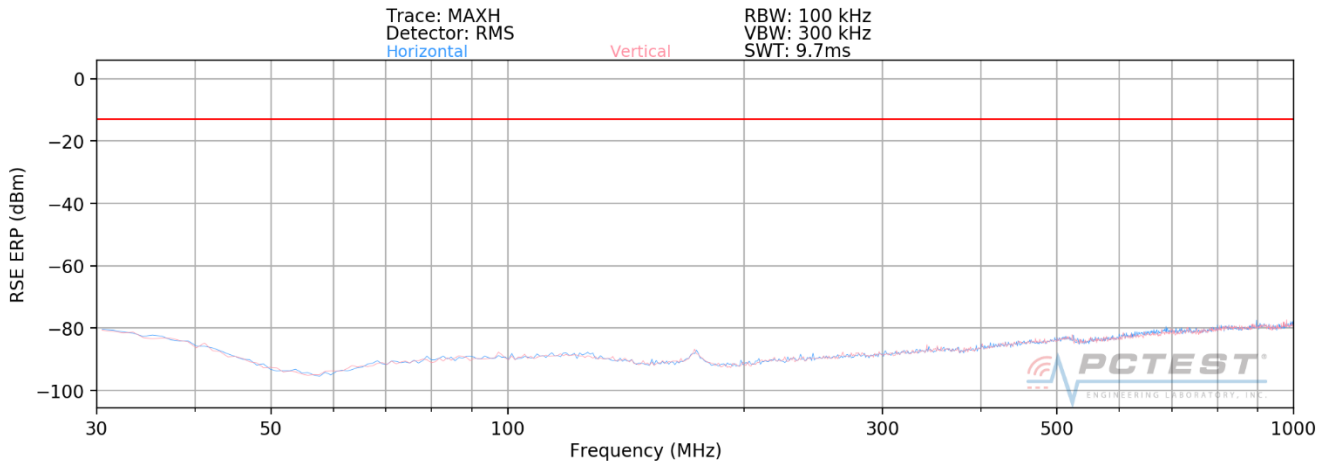
Table 7-10. Far-Field Distance per Frequency Range

6) All emissions from 30MHz - 60GHz were measured using a spectrum analyzer with an internal preamplifier. Emissions >60GHz were measured using a harmonic mixer with the spectrum analyzer.

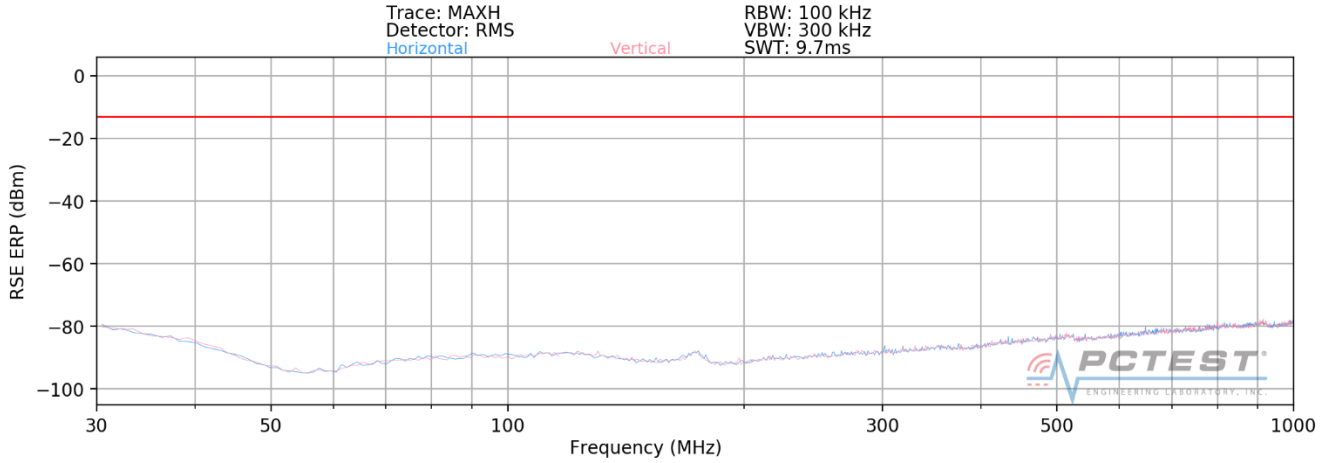
7) All RSE's were measured with 1CC. It was determined that adding more CC's causes the overall amplitude of just 1CC to decrease, therefore, 1CC is the worst case for the purposes of spurious emissions measurements.

8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

7.4.1 Radiated Spurious Emissions Plots n261 (30MHz – 1GHz)

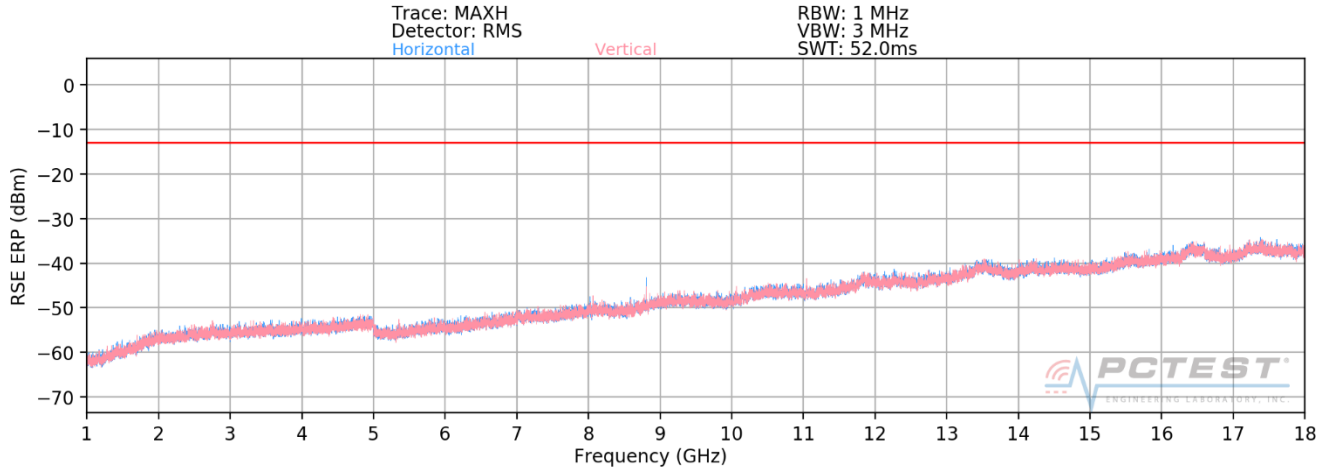


Plot 7-49. Radiated Spurious Plot 30 MHz - 1 GHz (QTM0 1CC-100MHz Bandwidth QPSK Mid Channel)

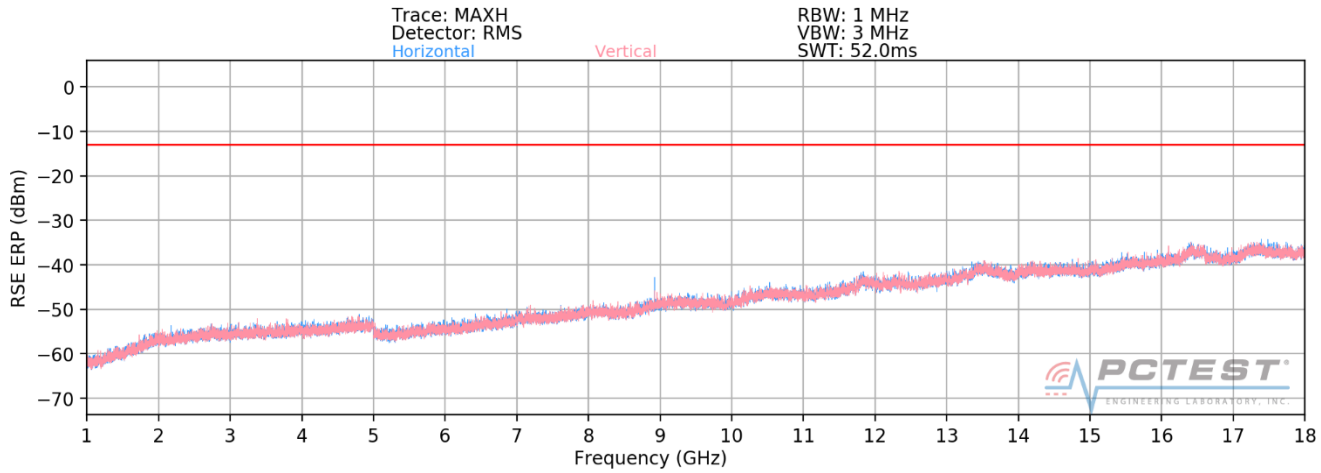


Plot 7-50. Radiated Spurious Plot 30 MHz - 1 GHz (QTM1 1CC100MHz Bandwidth QPSK Mid Channel)

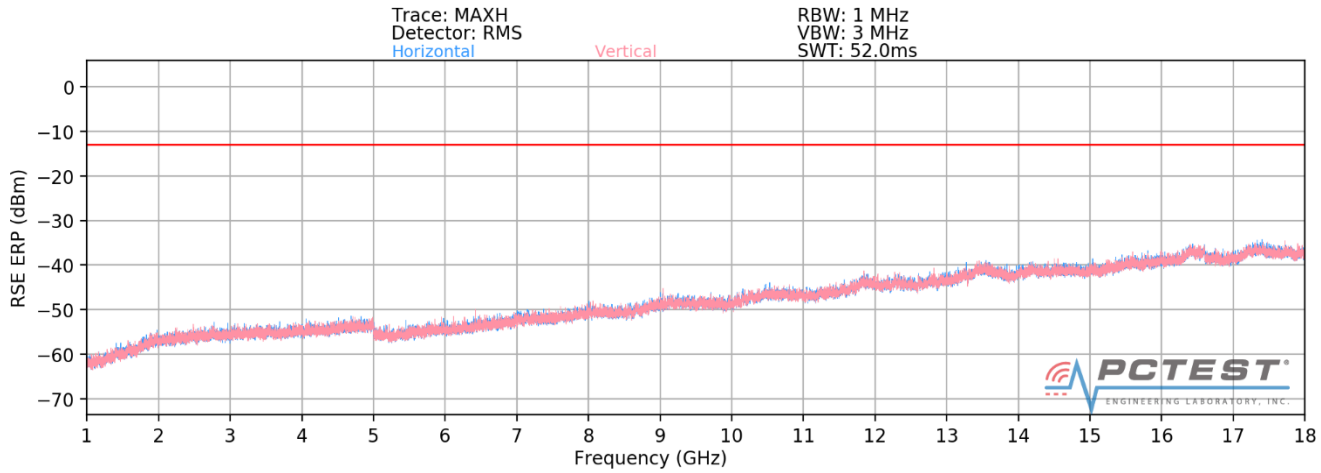
7.4.2 Radiated Spurious Emissions Plots n261 (1 – 18GHz)



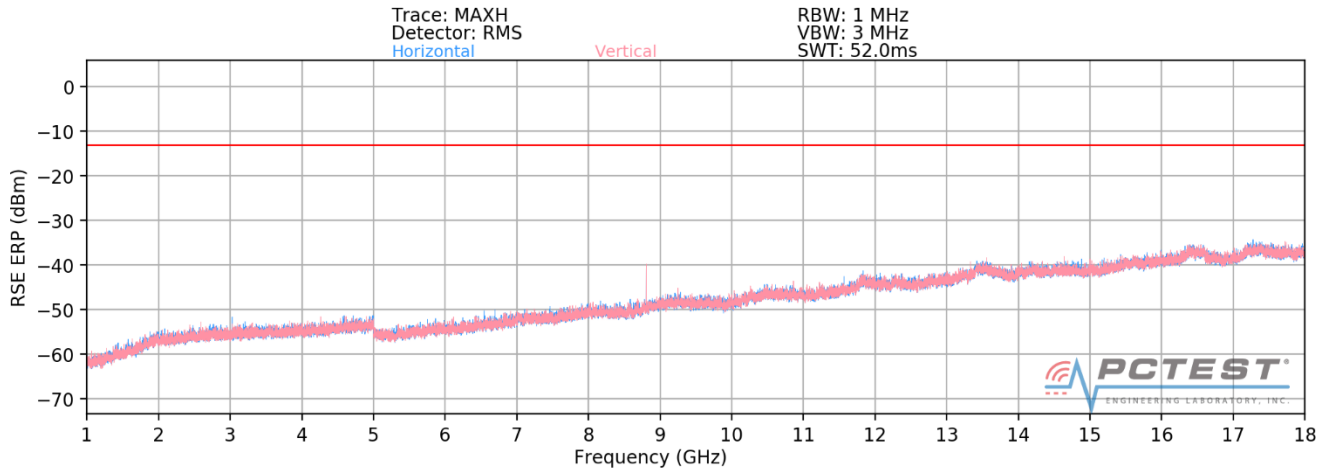
Plot 7-51. Radiated Spurious Plot 1-18 GHz (QTM0 1CC-100MHz Bandwidth QPSK Low Channel)



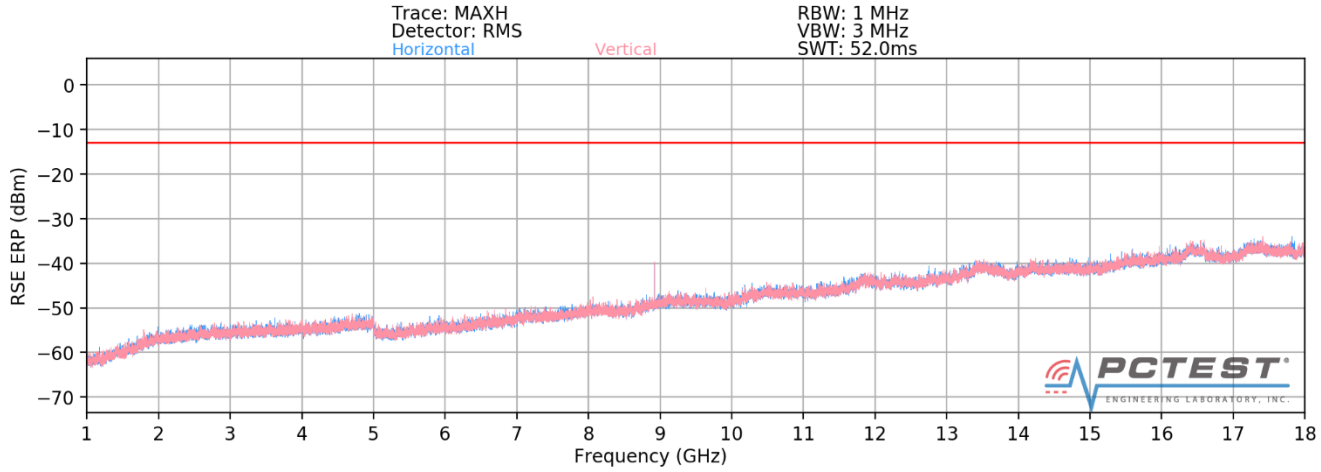
Plot 7-52. Radiated Spurious Plot 1-18 GHz (QTM0 1CC-100MHz Bandwidth QPSK Mid Channel)



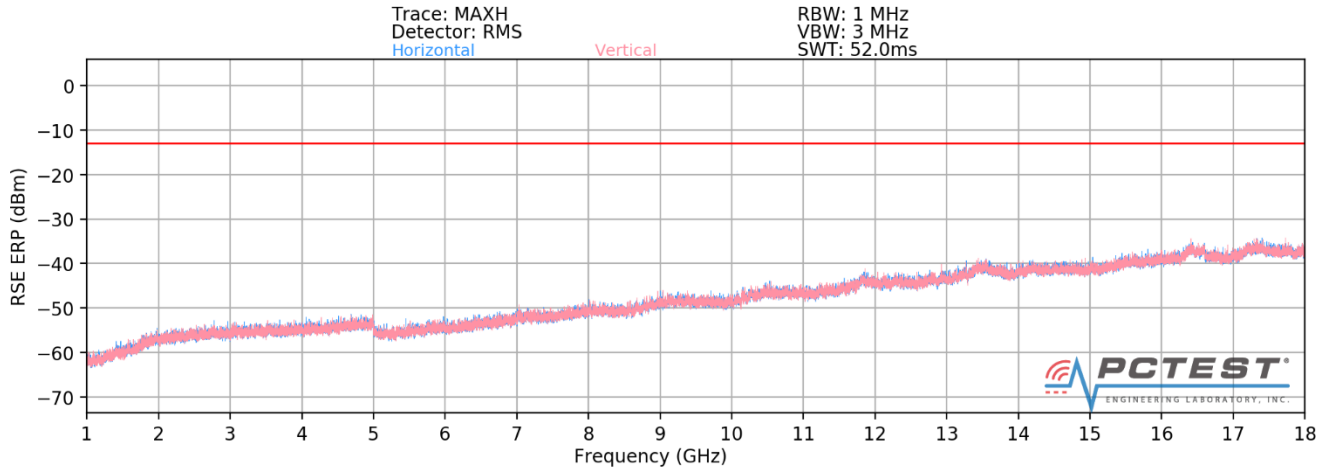
Plot 7-53. Radiated Spurious Plot 1-18 GHz (QTM0 1CC-100MHz Bandwidth QPSK High Channel)



Plot 7-54. Radiated Spurious Plot 1-18 GHz (QTM1 1CC-100MHz Bandwidth QPSK Low Channel)

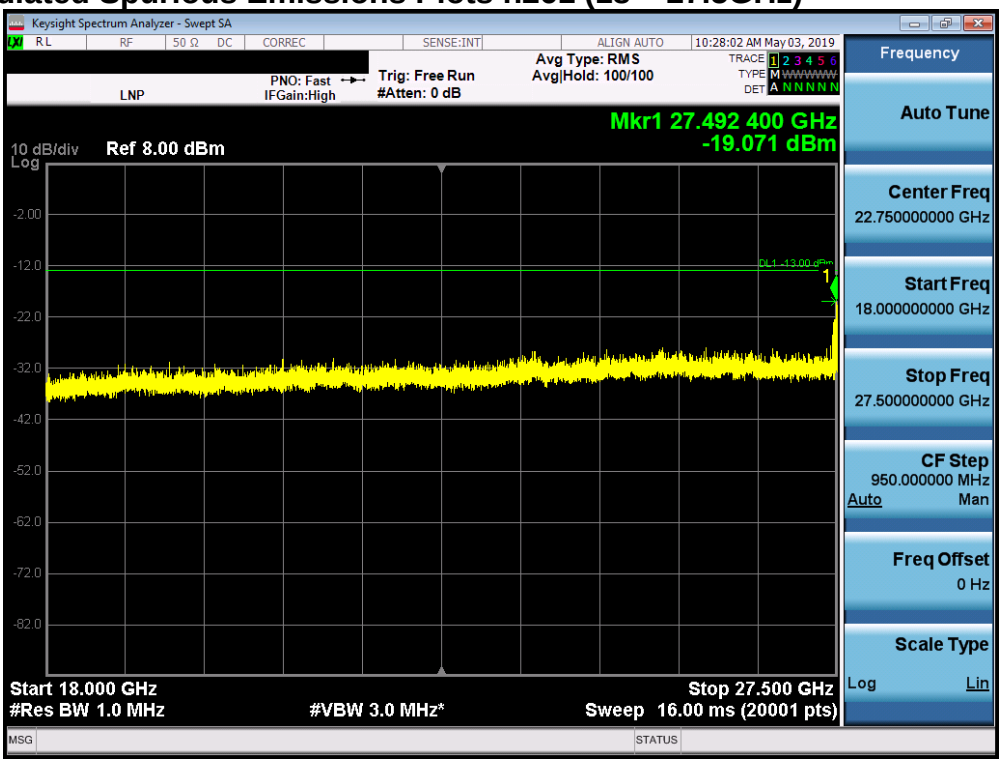


Plot 7-55. Radiated Spurious Plot 1-18 GHz (QTM1 1CC-100MHz Bandwidth QPSK Mid Channel)

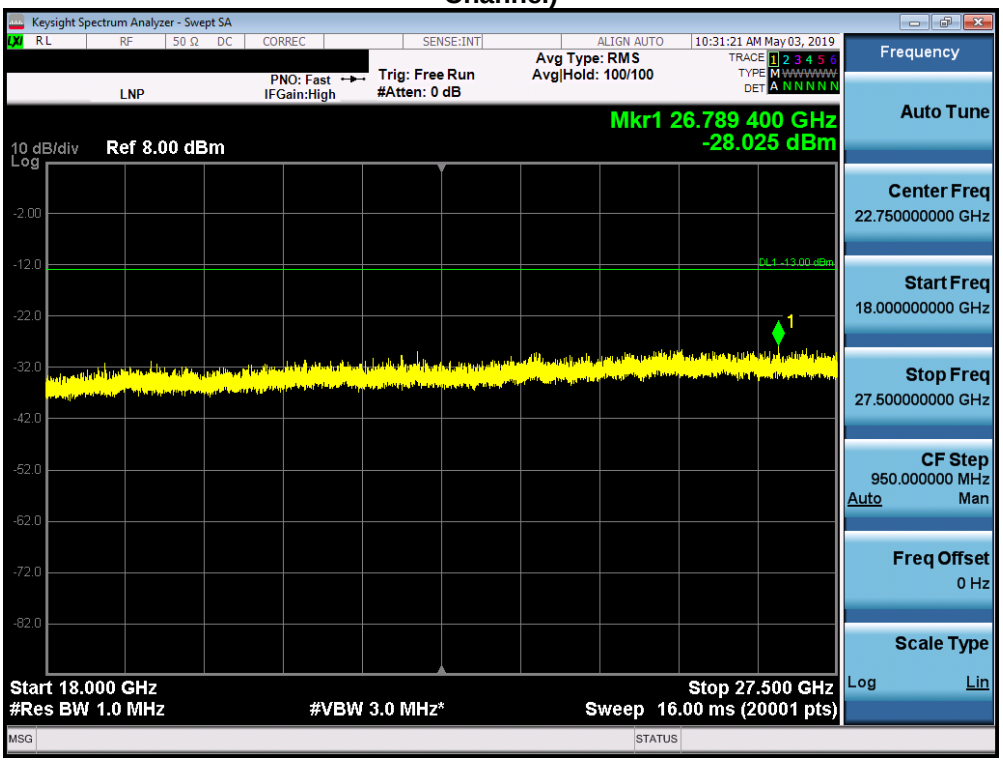


Plot 7-56. Radiated Spurious Plot 1-18 GHz (QTM1 1CC-100MHz Bandwidth QPSK High Channel)

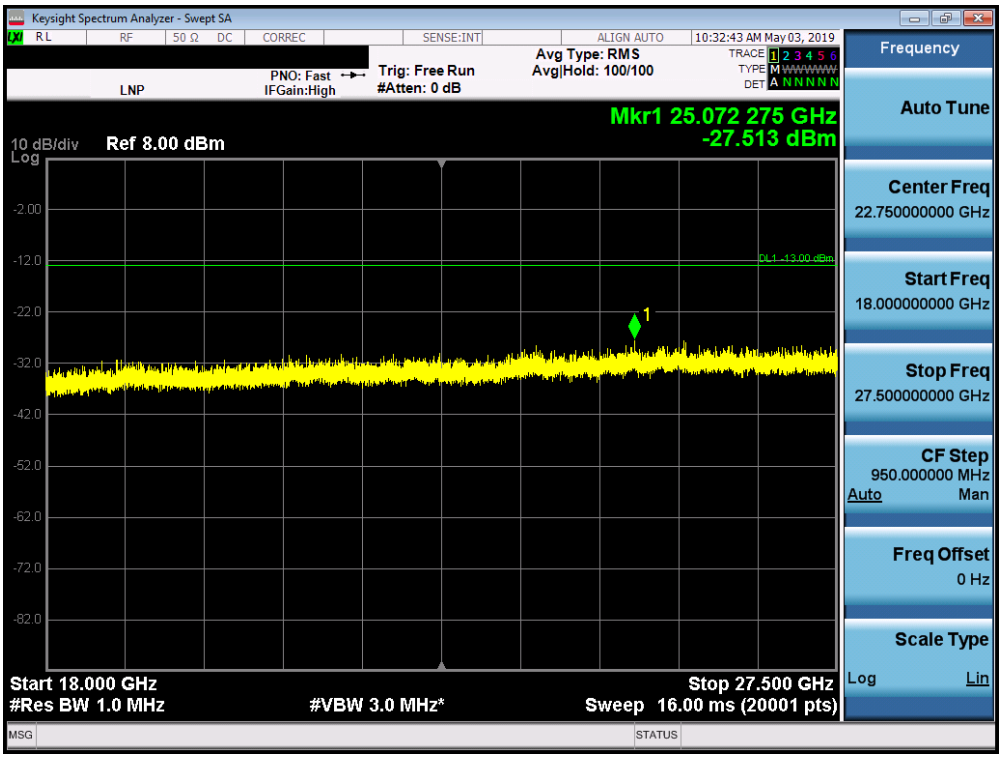
7.4.3 Radiated Spurious Emissions Plots n261 (18 – 27.5GHz)



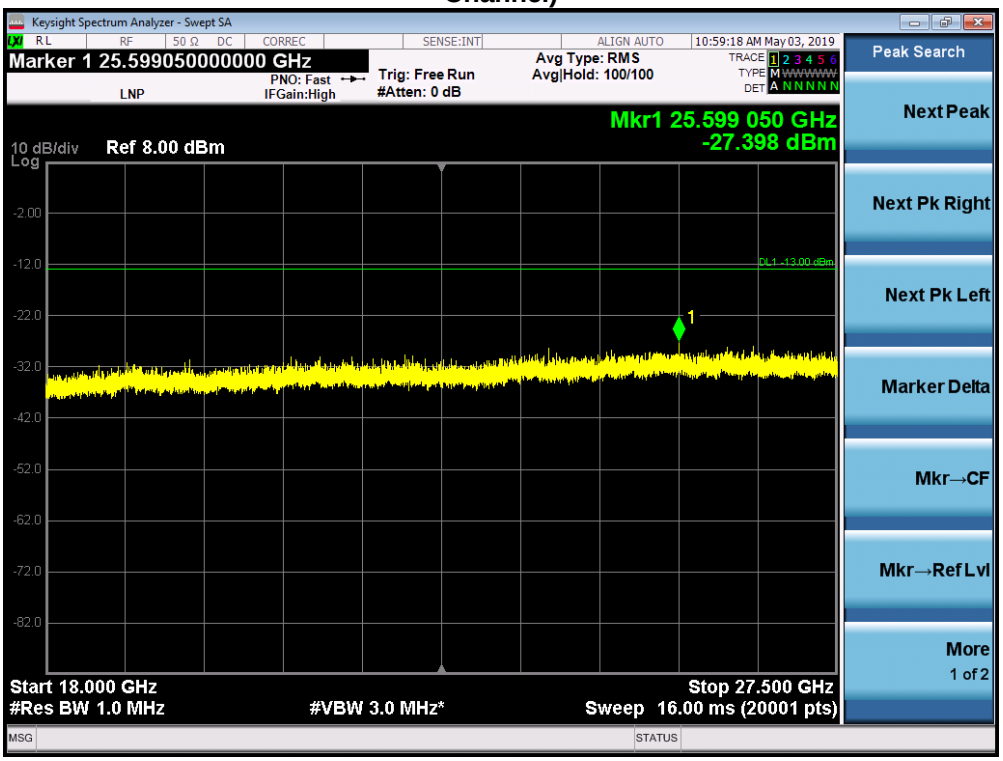
Plot 7-57. Horizontal Radiated Spurious Plot 18-27.5 GHz (QTM0 1CC-100MHz Bandwidth QPSK Low Channel)



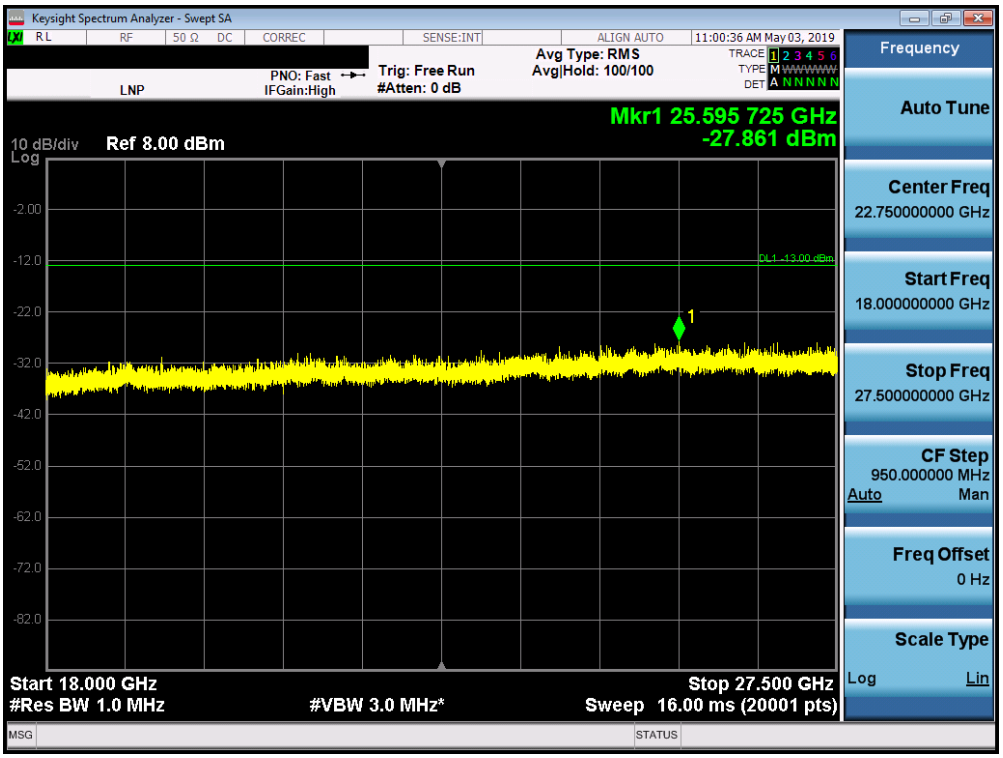
Plot 7-58. Horizontal Radiated Spurious Plot 18-27.5 GHz (QTM0 1CC-100MHz Bandwidth QPSK Mid Channel)



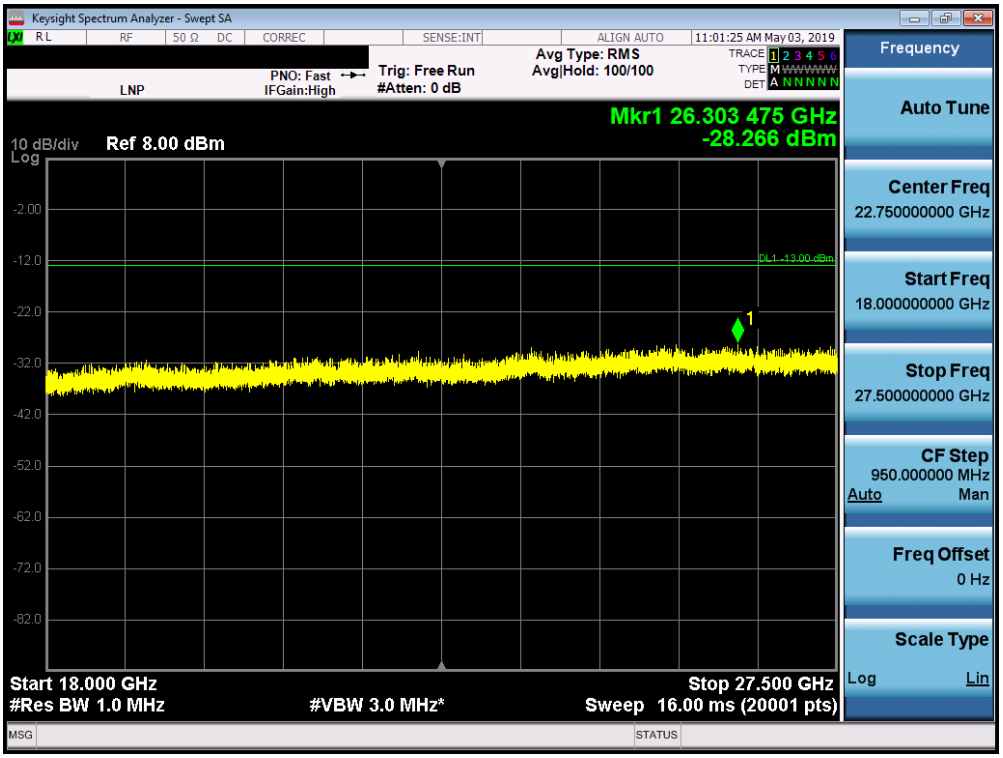
Plot 7-59. Horizontal Radiated Spurious Plot 18-27.5 GHz (QTM0 1CC-100MHz Bandwidth QPSK High Channel)



Plot 7-60. Vertical Radiated Spurious Plot 18-27.5 GHz (QTM0 1CC-100MHz Bandwidth QPSK Low Channel)



Plot 7-61. Vertical Radiated Spurious Plot 18-27.5 GHz (QTM0 1CC-100MHz Bandwidth QPSK Mid Channel)



Plot 7-62. Vertical Radiated Spurious Plot 18-27.5 GHz (QTM0 1CC-100MHz Bandwidth QPSK High Channel)