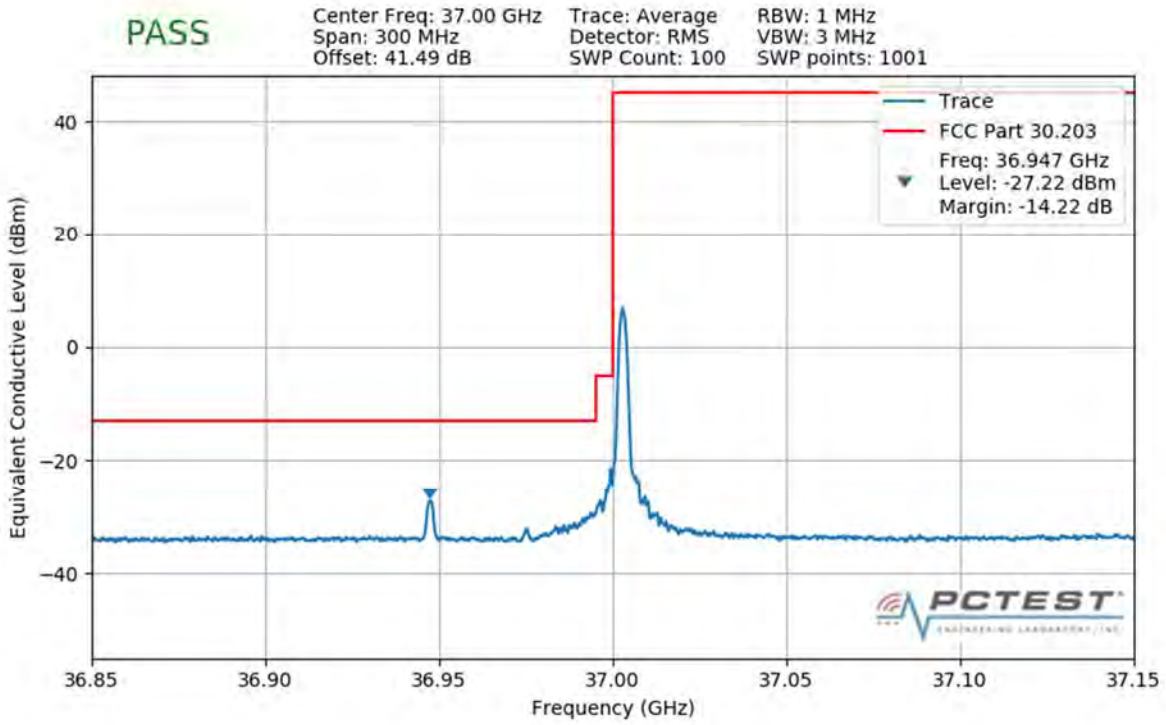
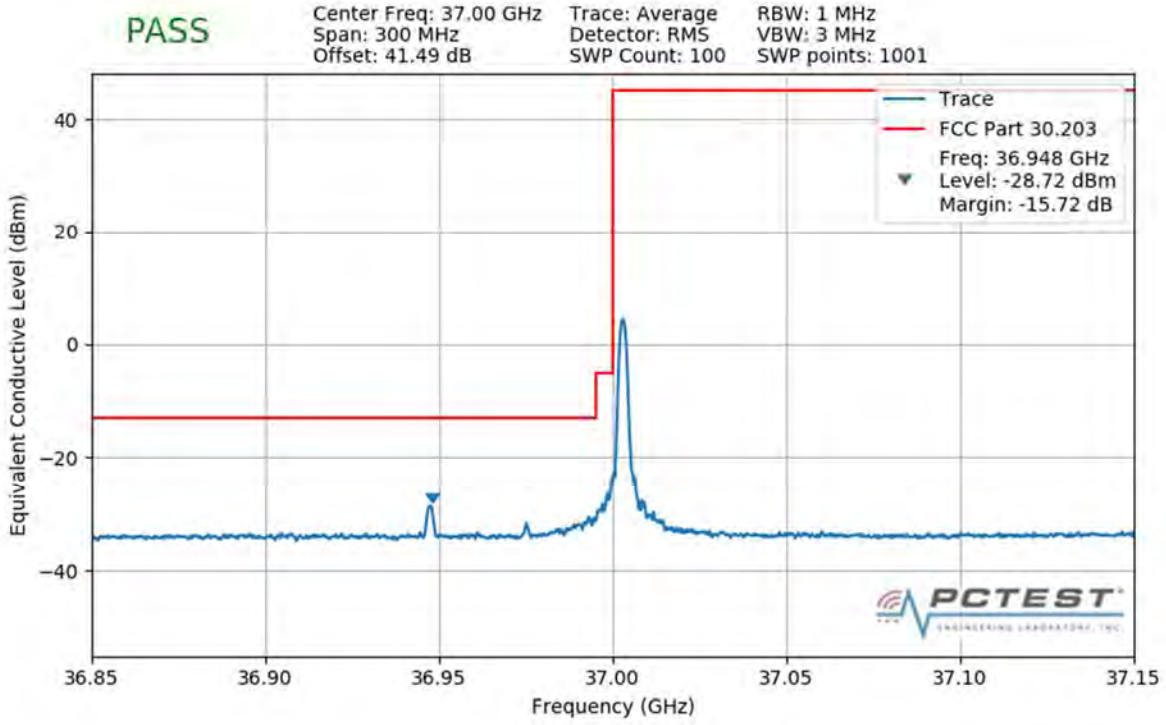
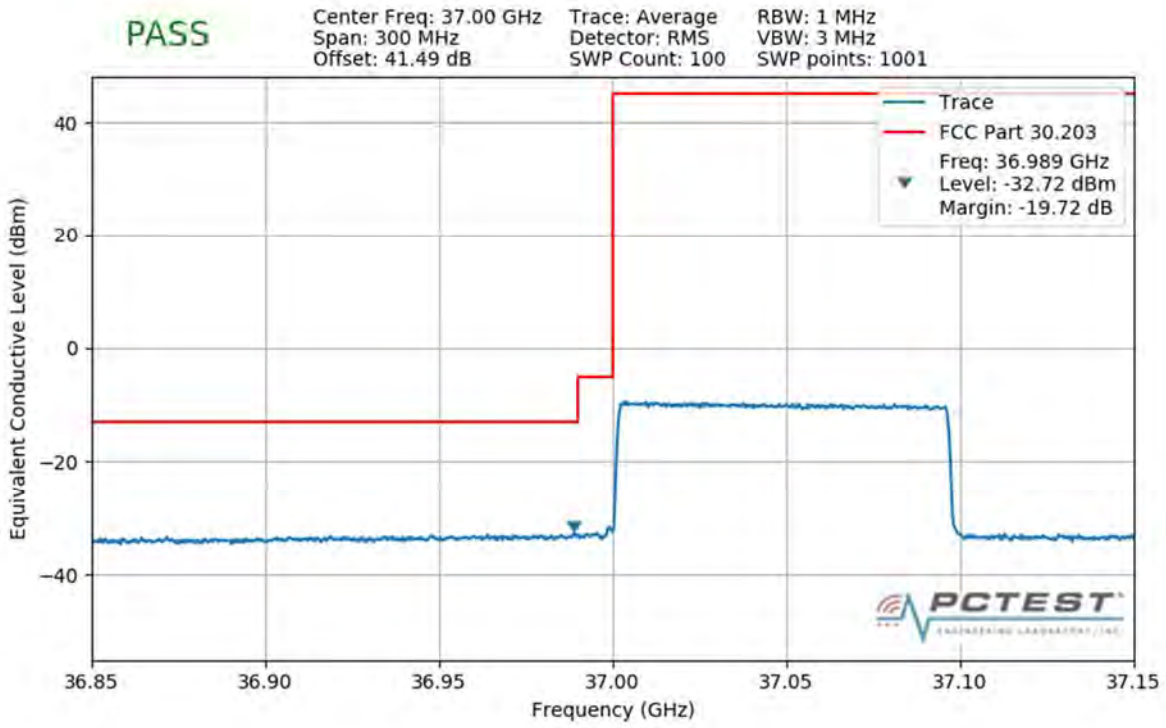


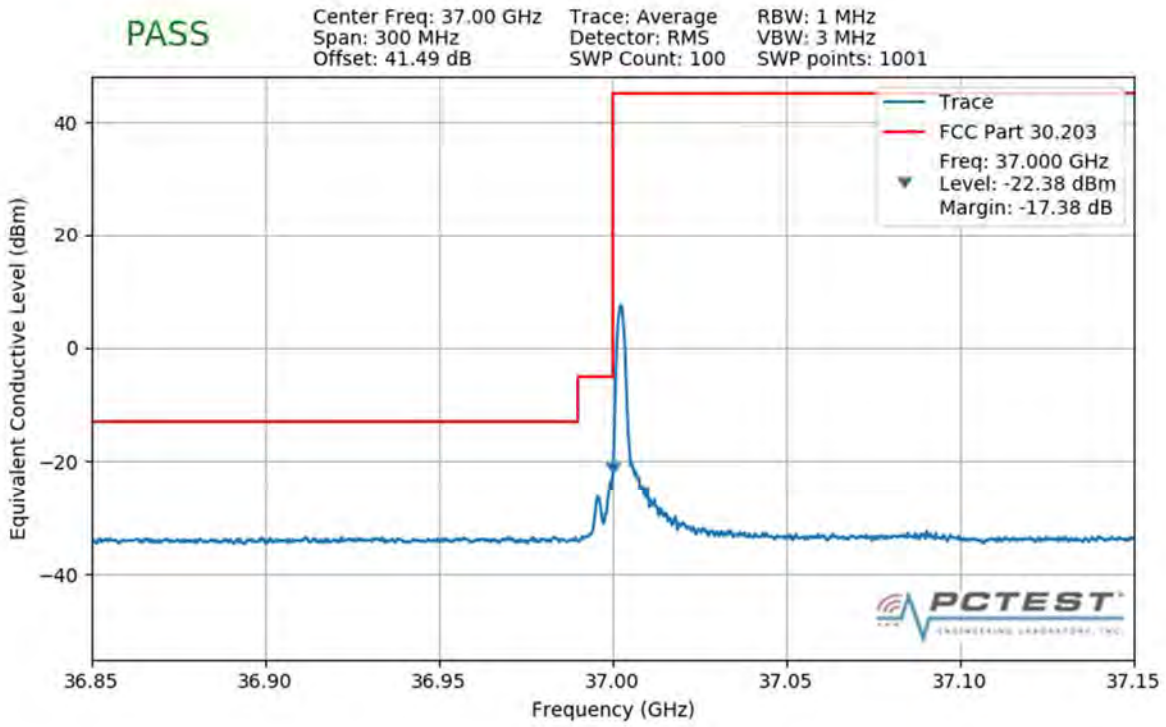
Plot 7-563. Lower Band Edge Plot (1CC 50MHz 16QAM 1 RB)



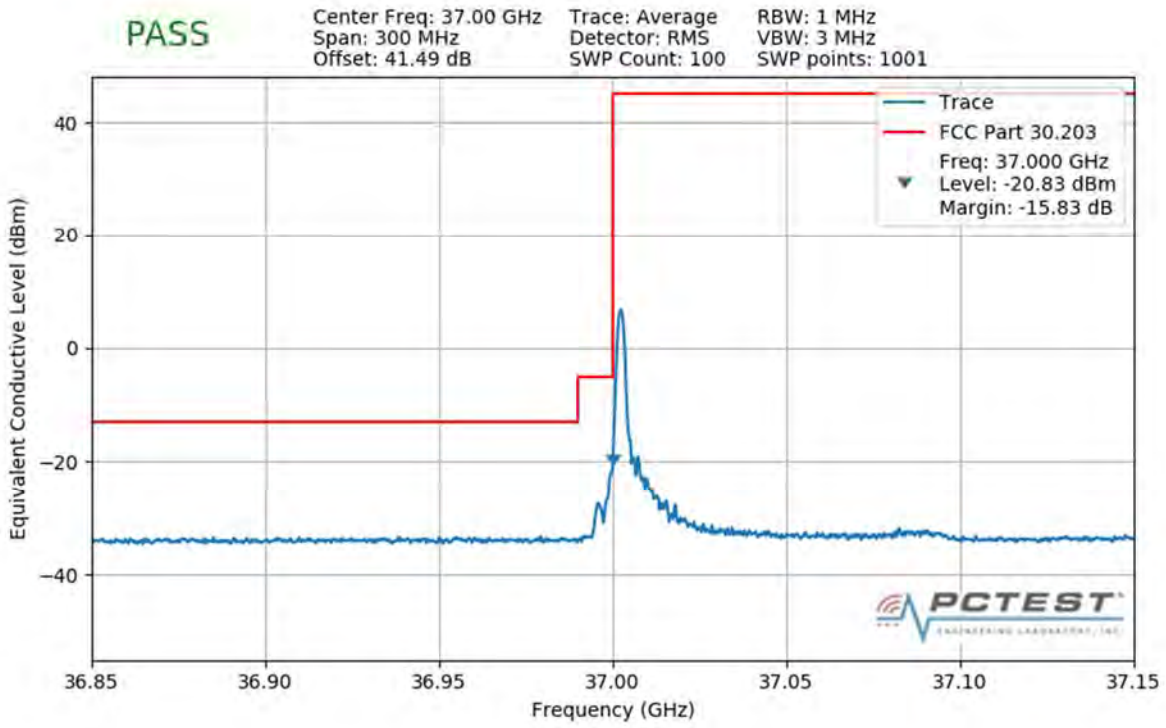
Plot 7-564. Lower Band Edge Plot (1CC 50MHz 64QAM 1 RB)



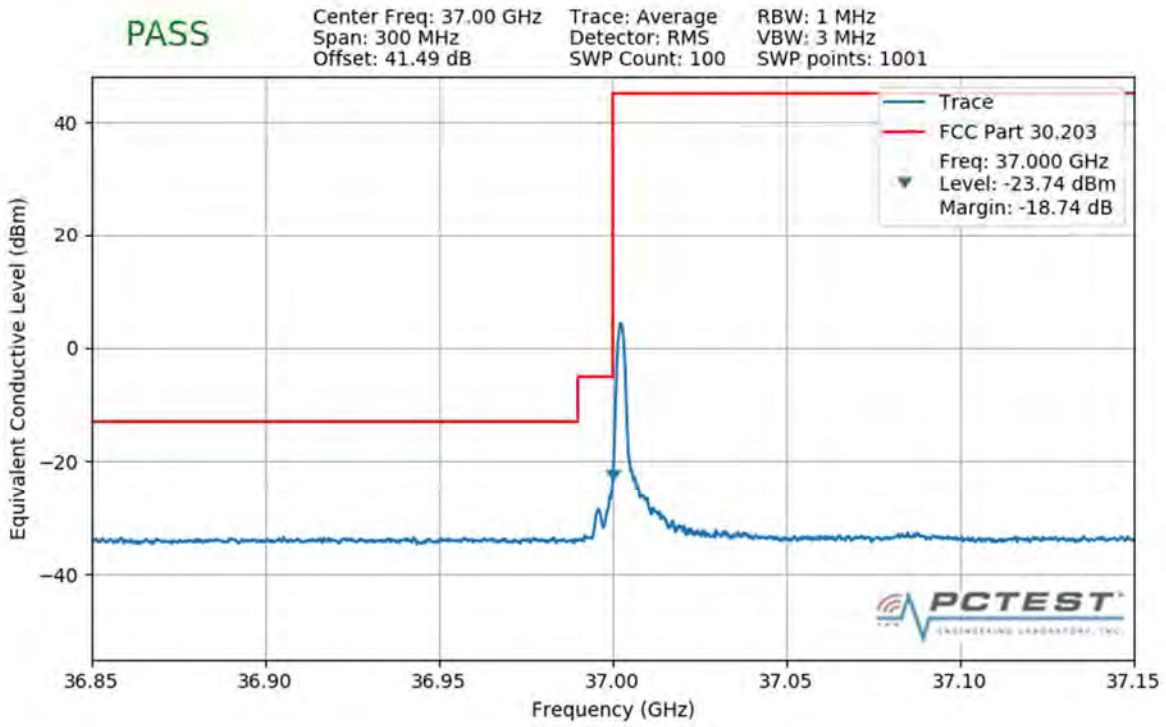
Plot 7-565. Lower Band Edge Plot (1CC 100MHz QPSK Full RB)



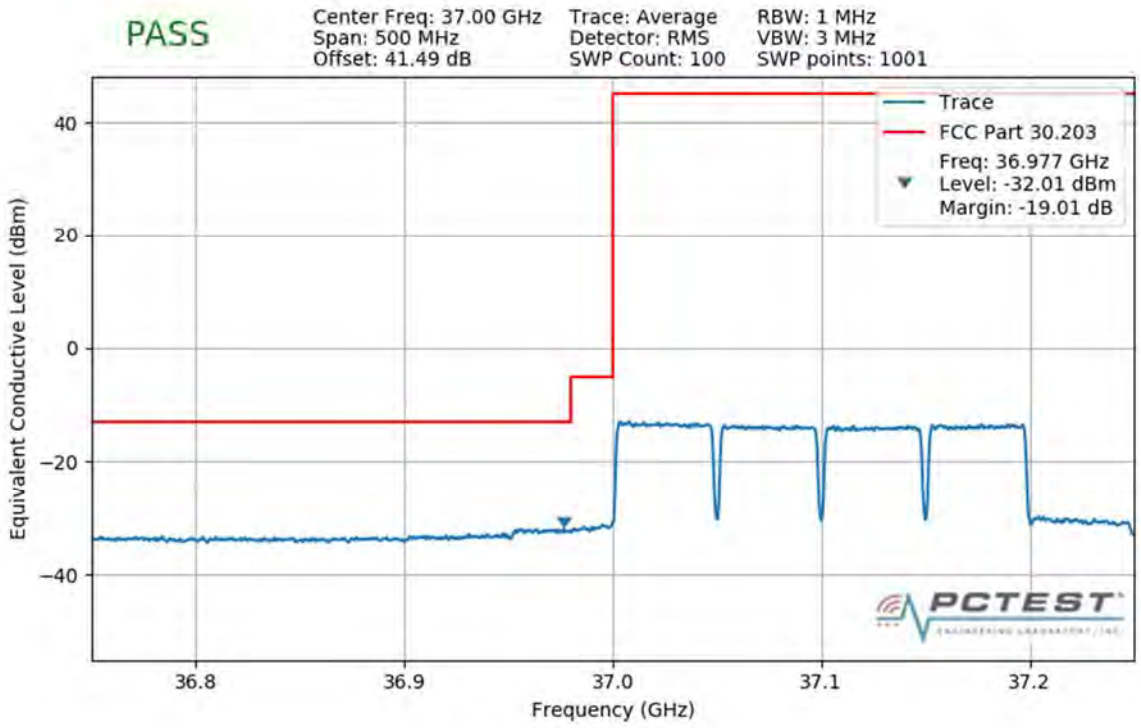
Plot 7-566. Lower Band Edge Plot (1CC 100MHz QPSK 1 RB)



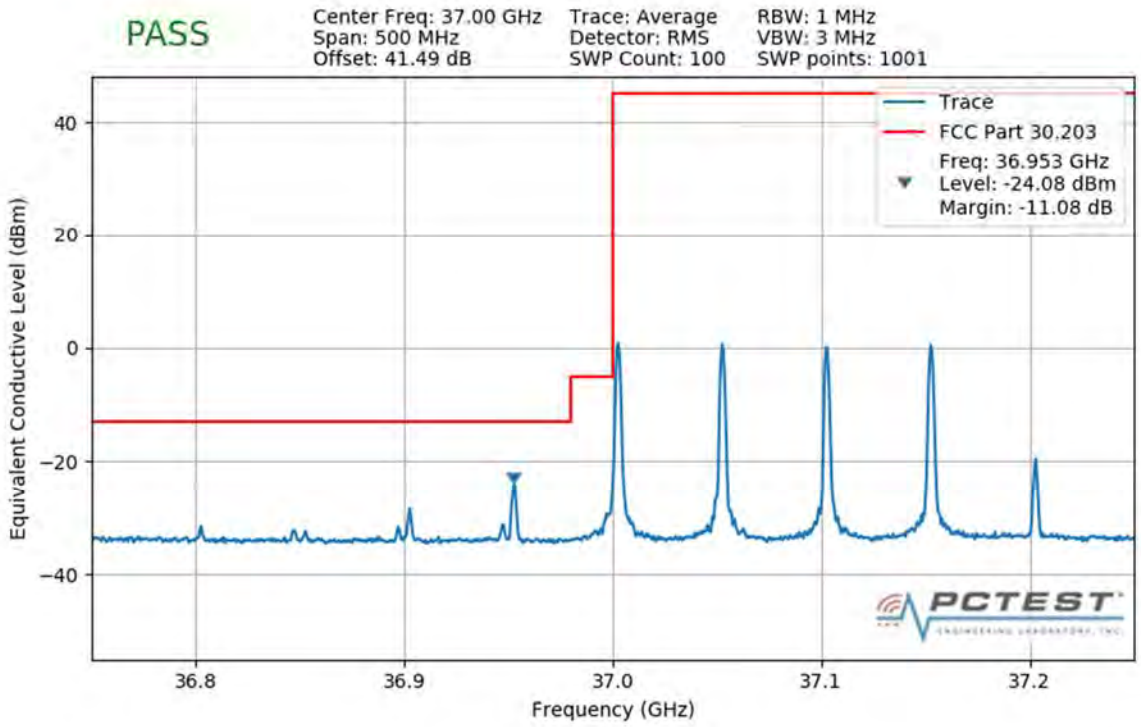
Plot 7-567. Lower Band Edge Plot (1CC 100MHz 16QAM 1 RB)



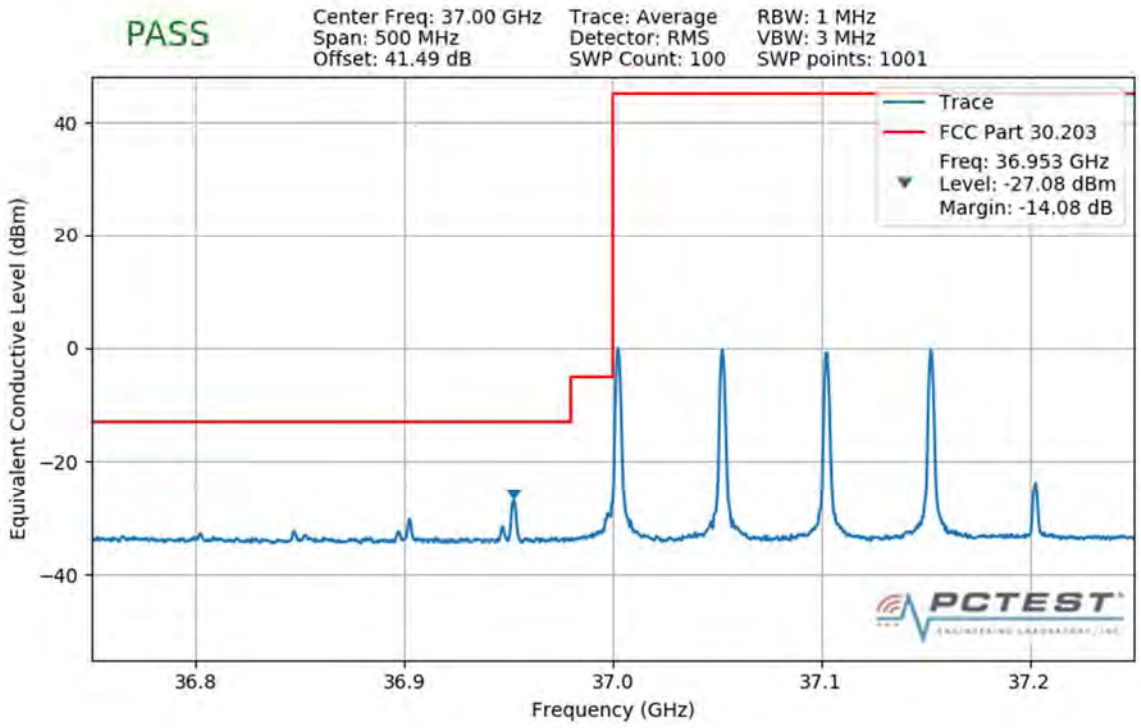
Plot 7-568. Lower Band Edge Plot (1CC 100MHz 64QAM 1 RB)



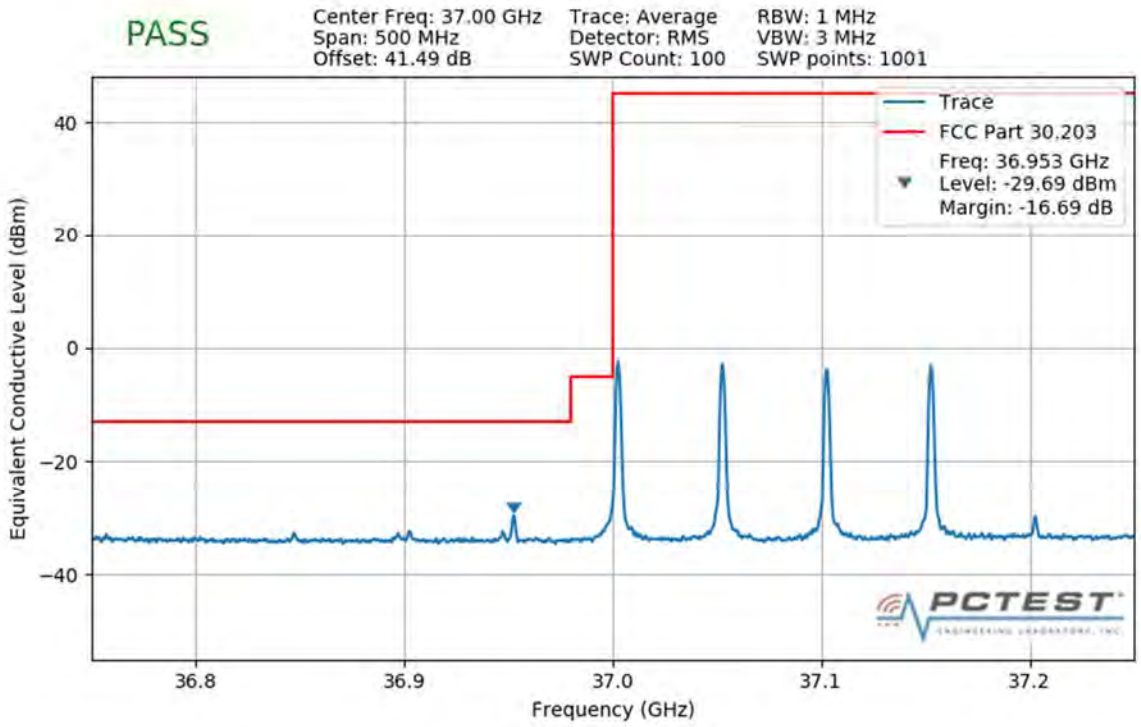
Plot 7-569. Lower Band Edge Plot (4CC 200MHz QPSK Full RB)



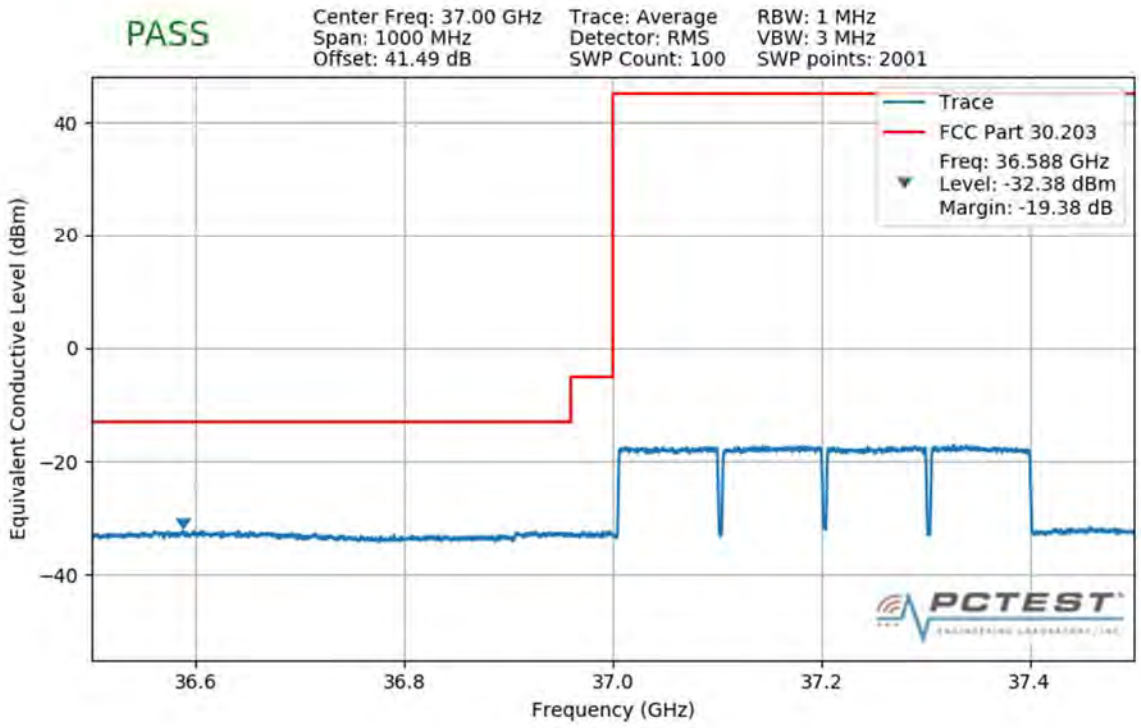
Plot 7-570. Lower Band Edge Plot (4CC 200MHz QPSK 1 RB)



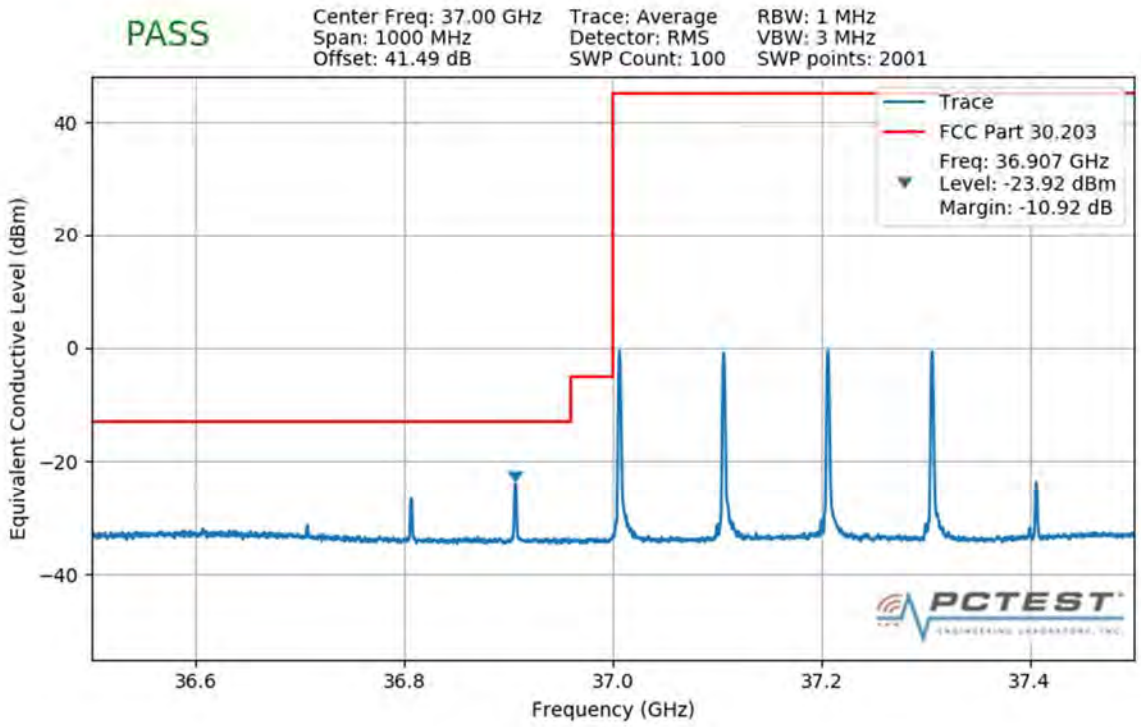
Plot 7-571. Lower Band Edge Plot (4CC 200MHz 16QAM 1 RB)



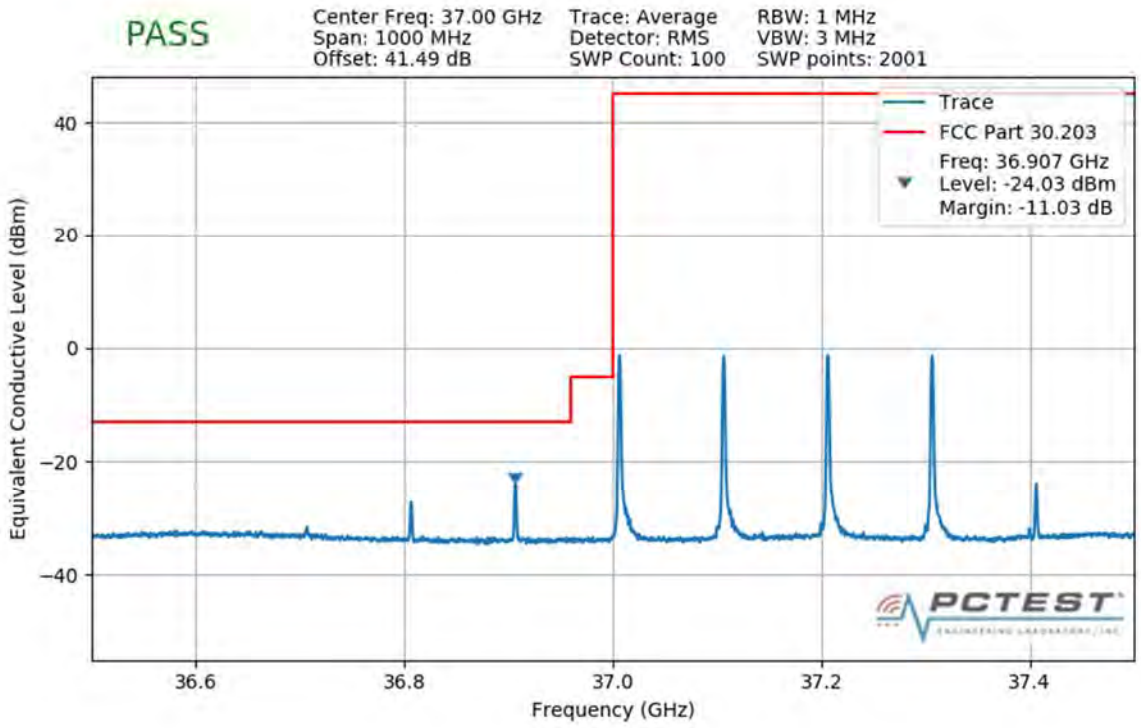
Plot 7-572. Lower Band Edge Plot (4CC 200MHz 64QAM 1 RB)



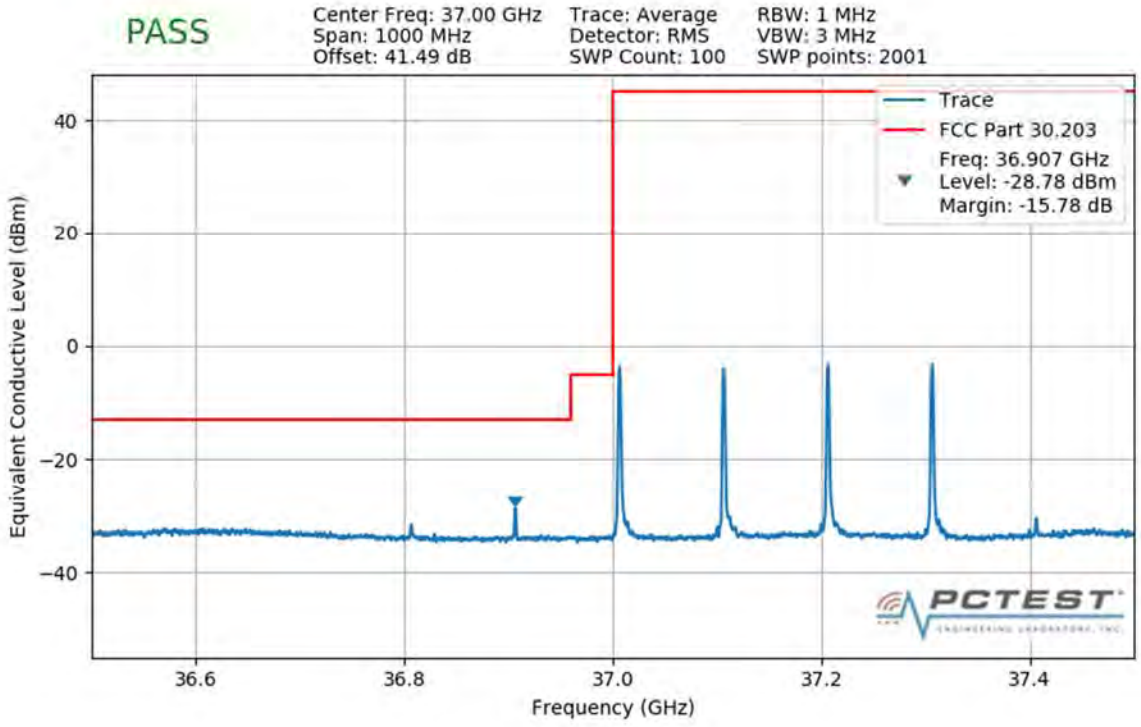
Plot 7-573. Lower Band Edge Plot (4CC 400MHz QPSK Full RB)



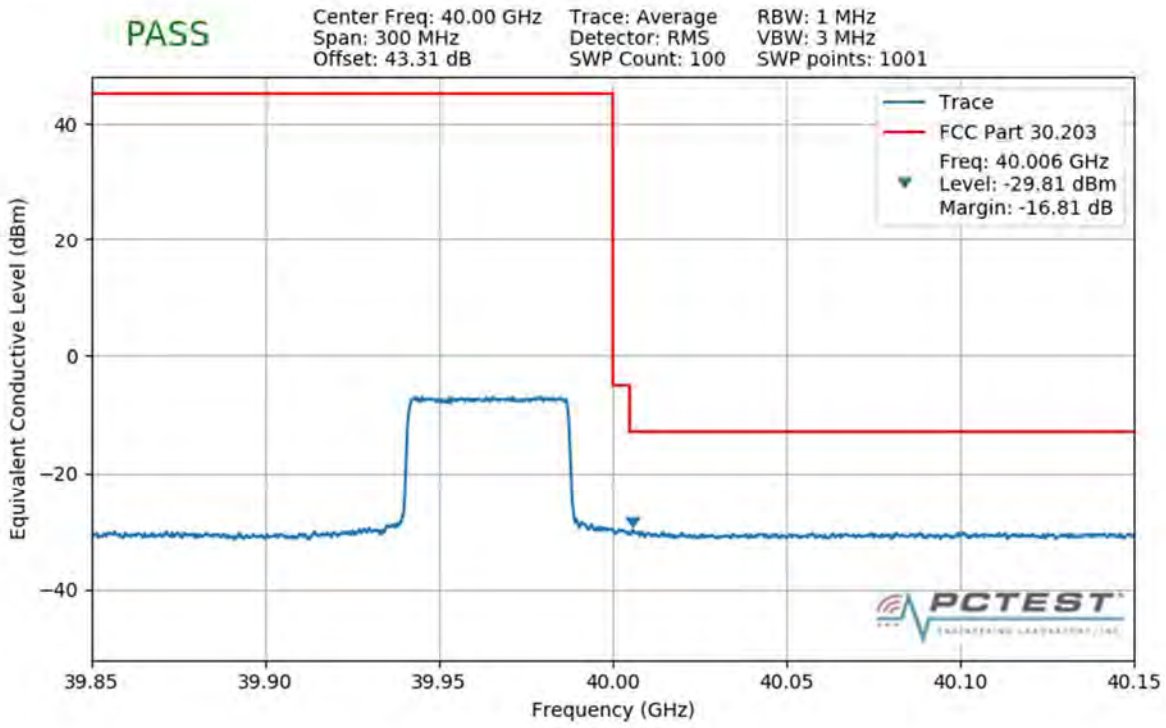
Plot 7-574. Lower Band Edge Plot (4CC 400MHz QPSK 1 RB)



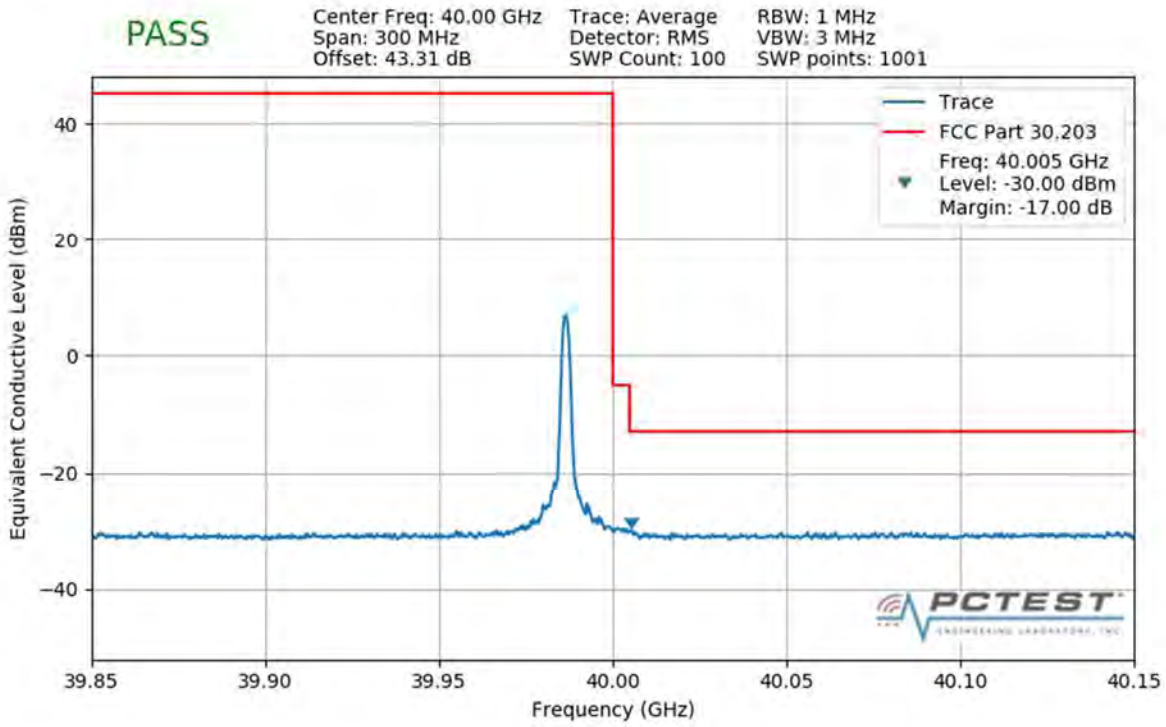
Plot 7-575. Lower Band Edge Plot (4CC 400MHz 16QAM 1 RB)



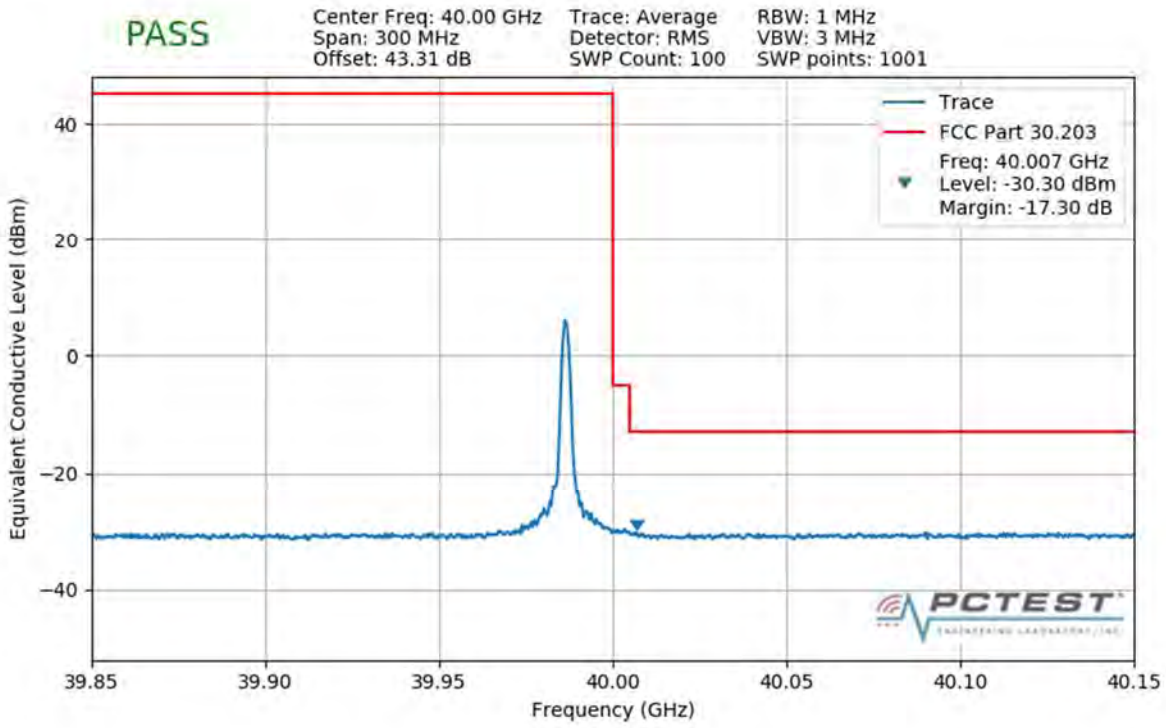
Plot 7-576. Lower Band Edge Plot (4CC 400MHz 64QAM 1 RB)



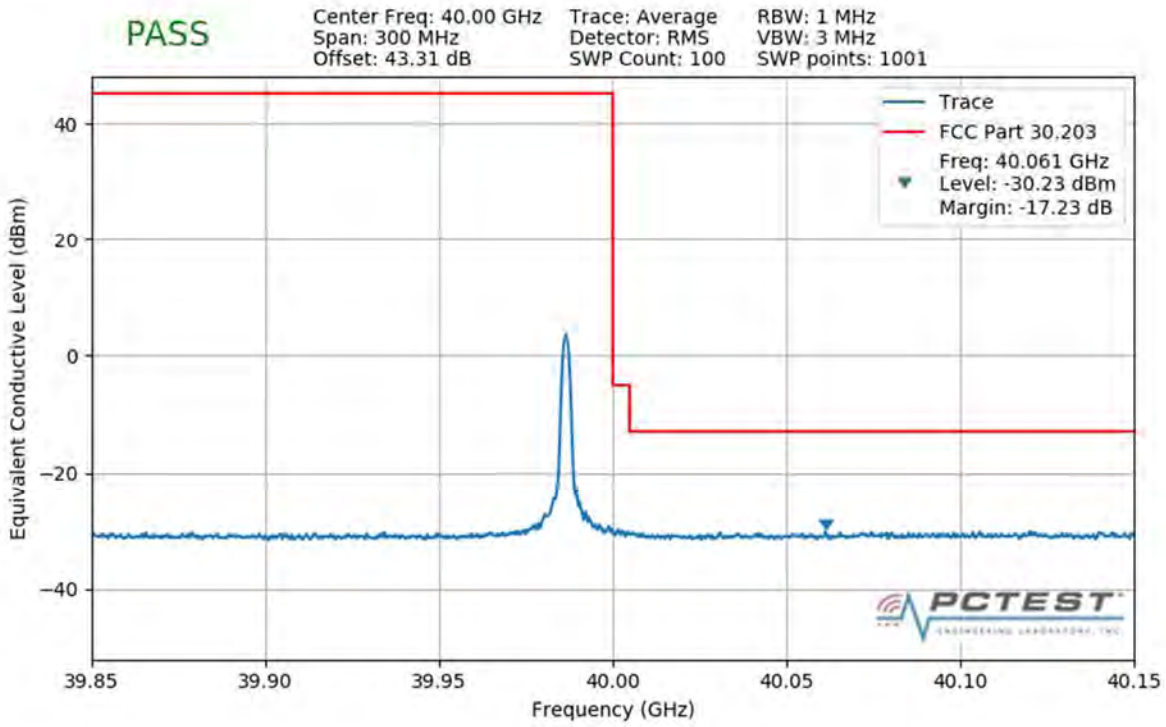
Plot 7-577. Upper Band Edge Plot (1CC 50MHz QPSK Full RB)



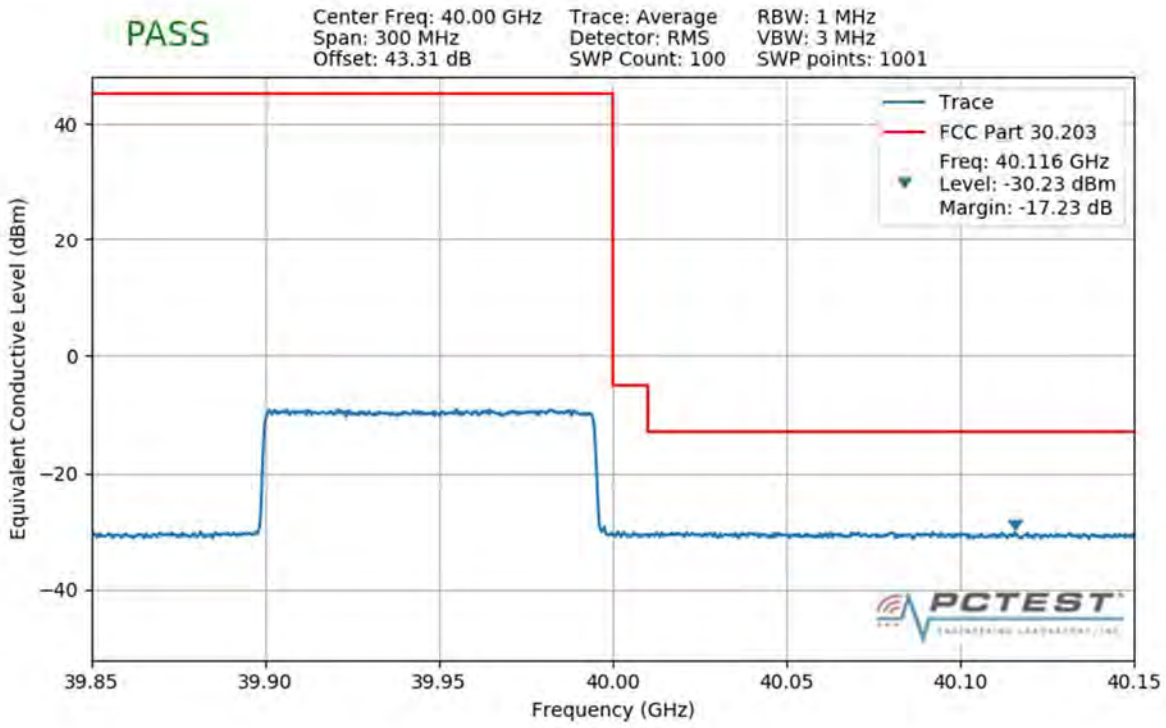
Plot 7-578. Upper Band Edge Plot (1CC 50MHz QPSK 1 RB)



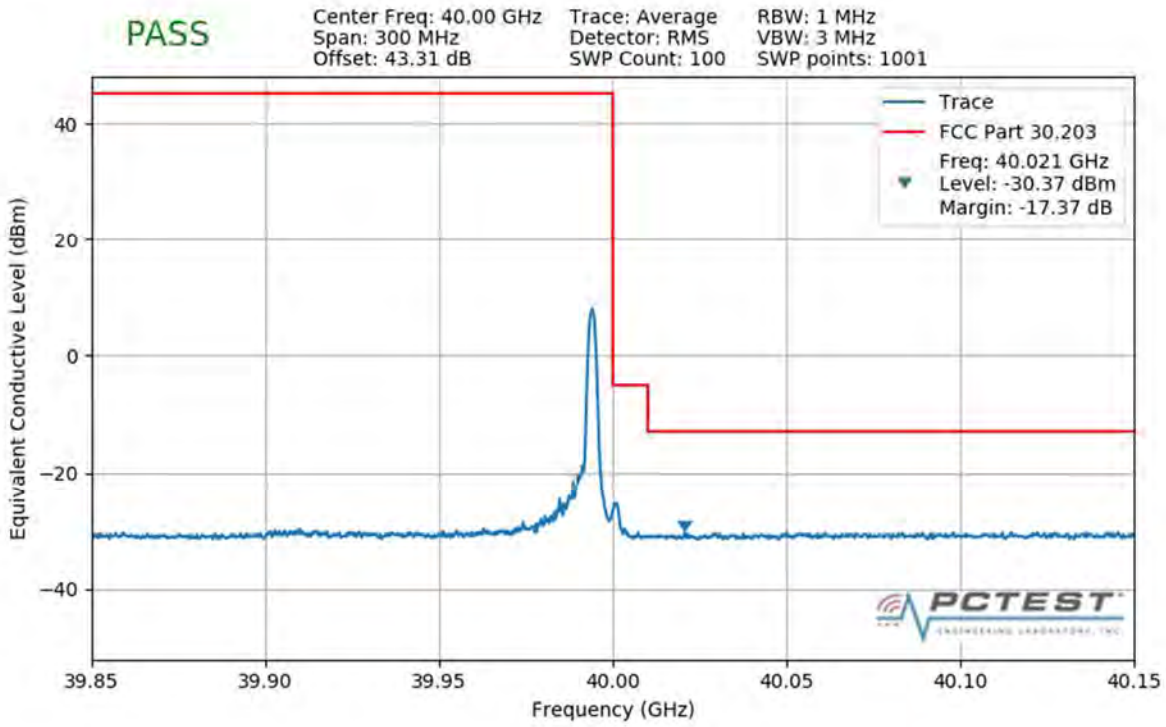
Plot 7-579. Upper Band Edge Plot (1CC 50MHz 16QAM 1 RB)



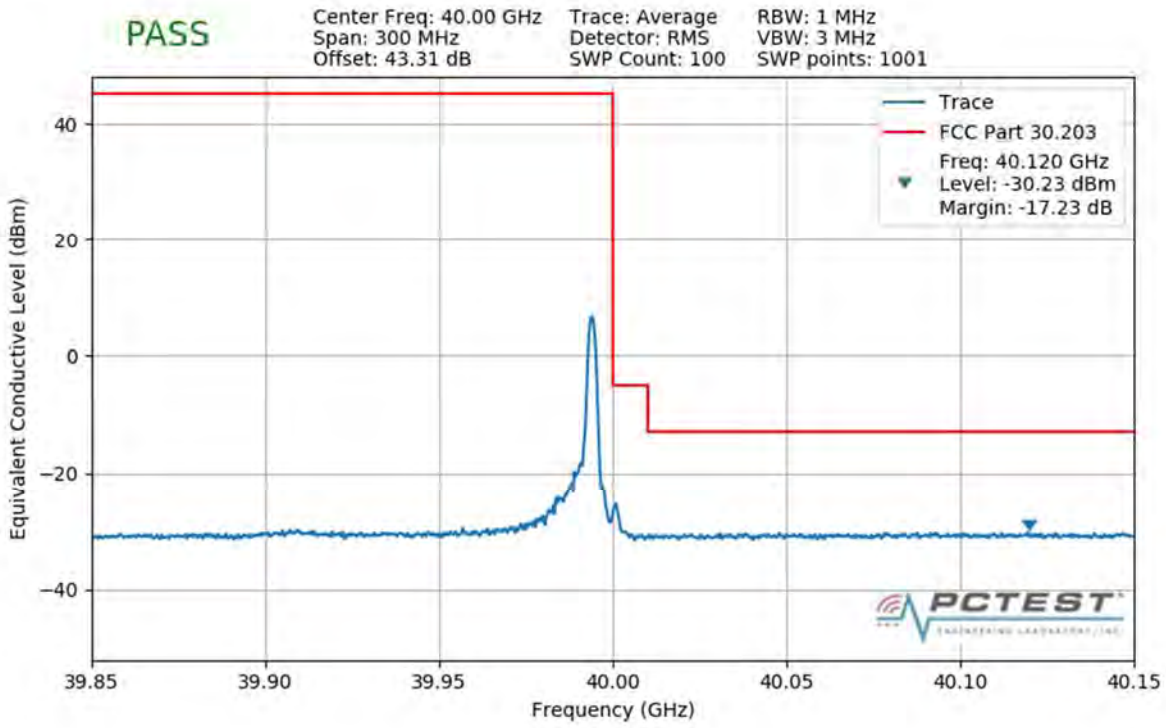
Plot 7-580. Upper Band Edge Plot (1CC 50MHz 64QAM 1 RB)



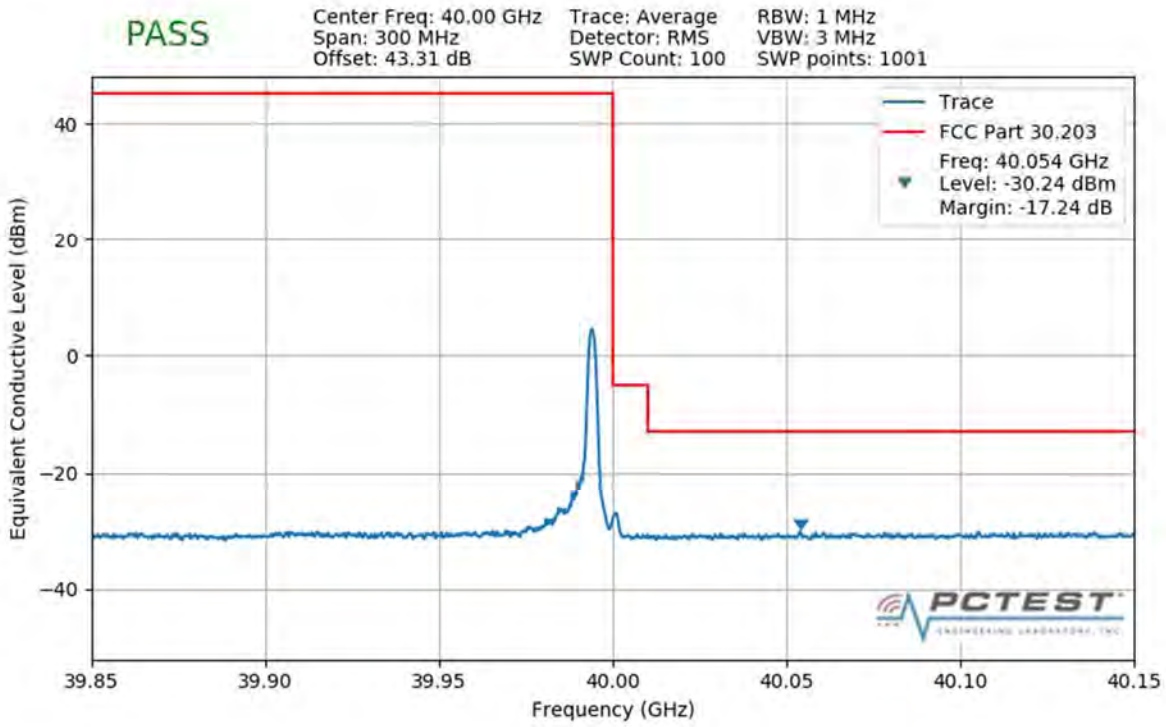
Plot 7-581. Upper Band Edge Plot (1CC 100MHz QPSK Full RB)



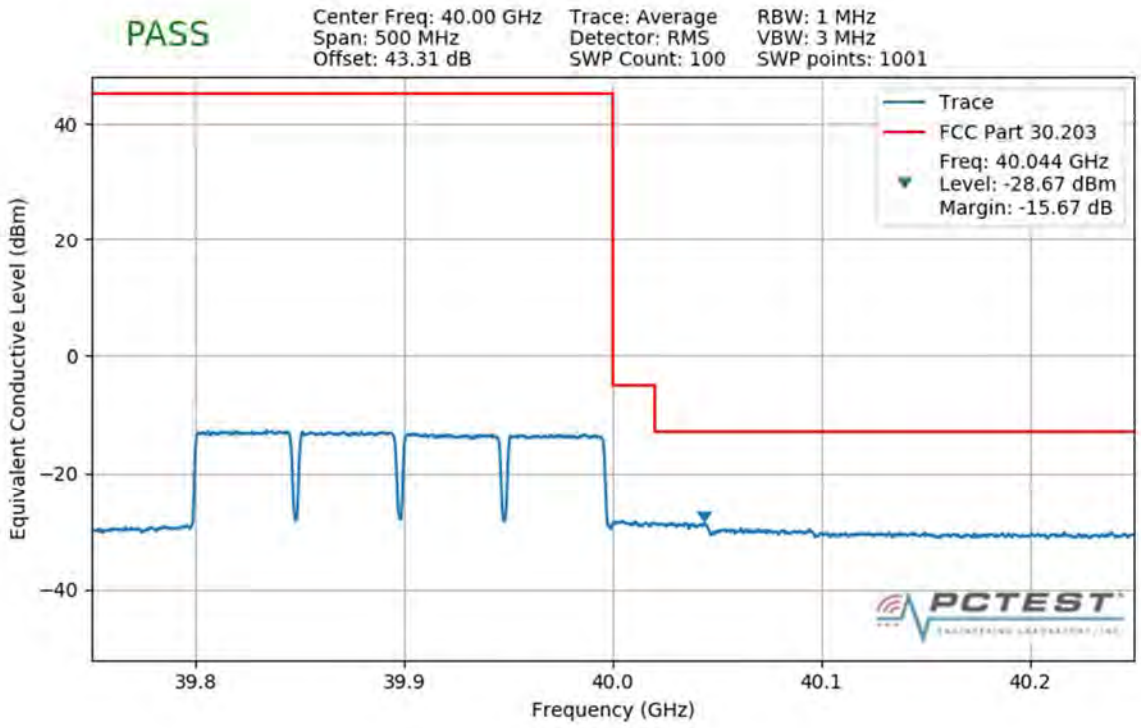
Plot 7-582. Upper Band Edge Plot (1CC 100MHz QPSK 1 RB)



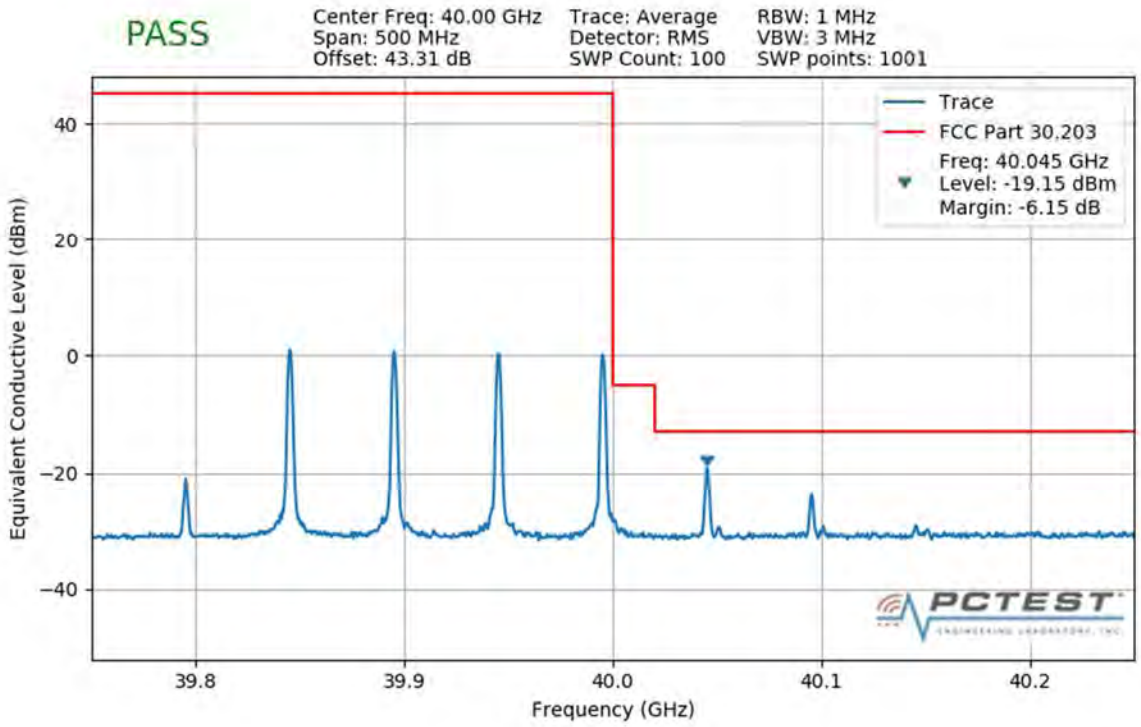
Plot 7-583. Upper Band Edge Plot (1CC 100MHz 16QAM 1 RB)



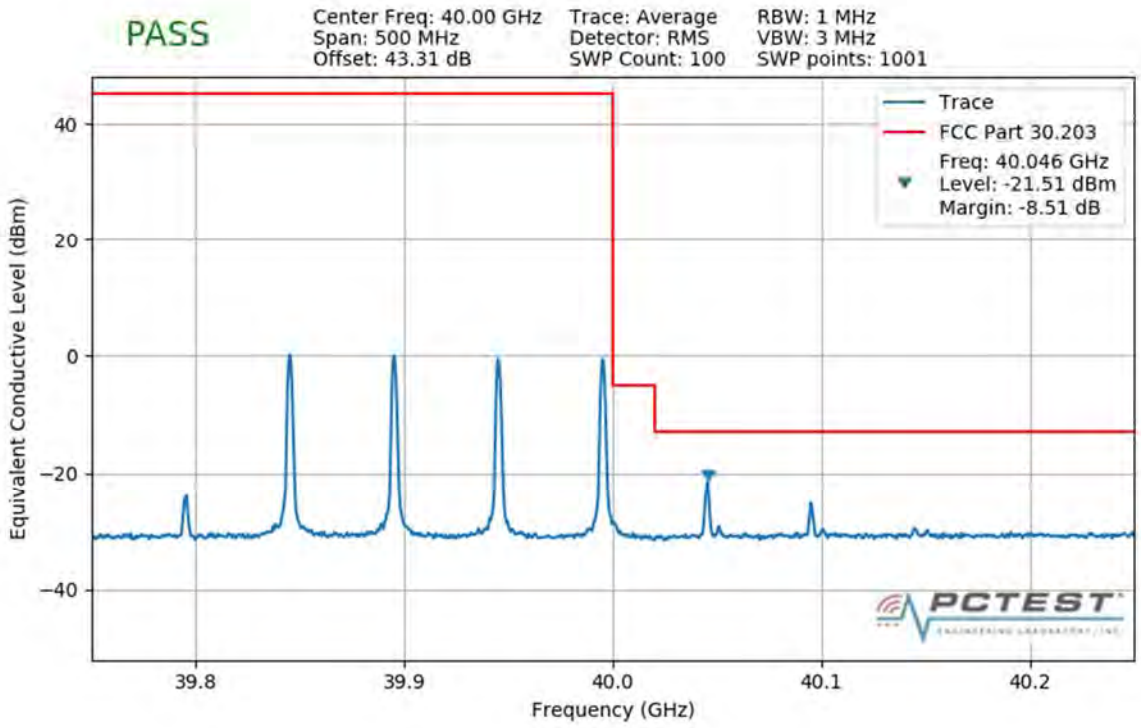
Plot 7-584. Upper Band Edge Plot (1CC 100MHz 64QAM 1 RB)



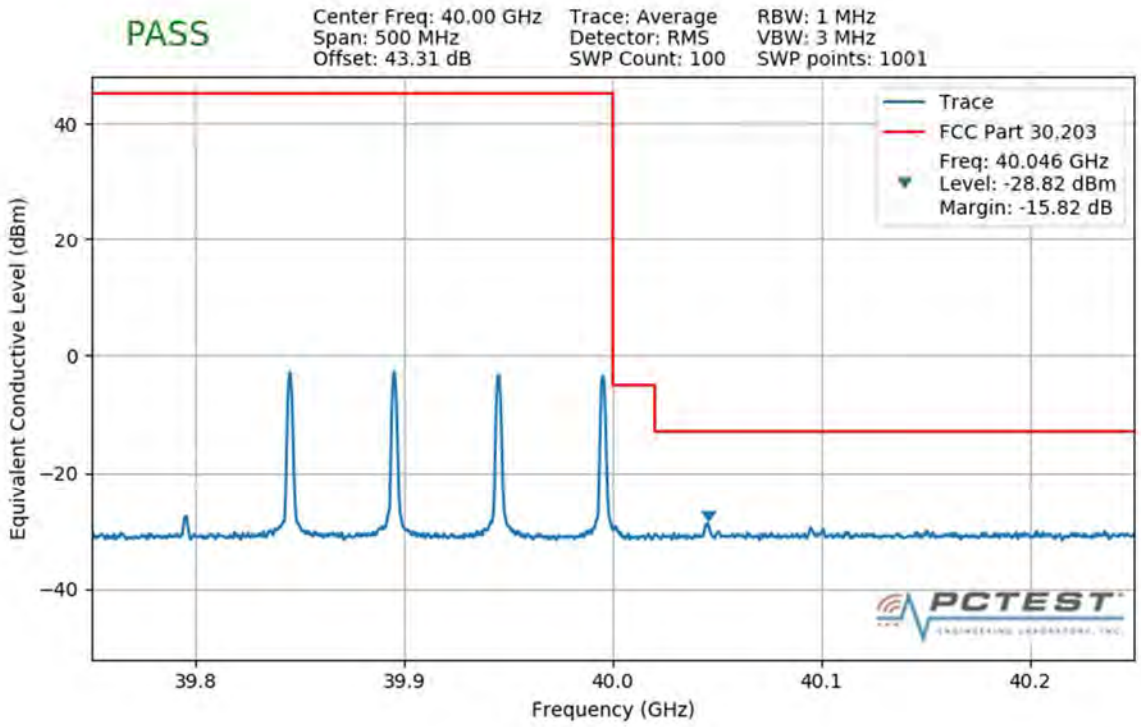
Plot 7-585. Upper Band Edge Plot (4CC 200MHz QPSK Full RB)



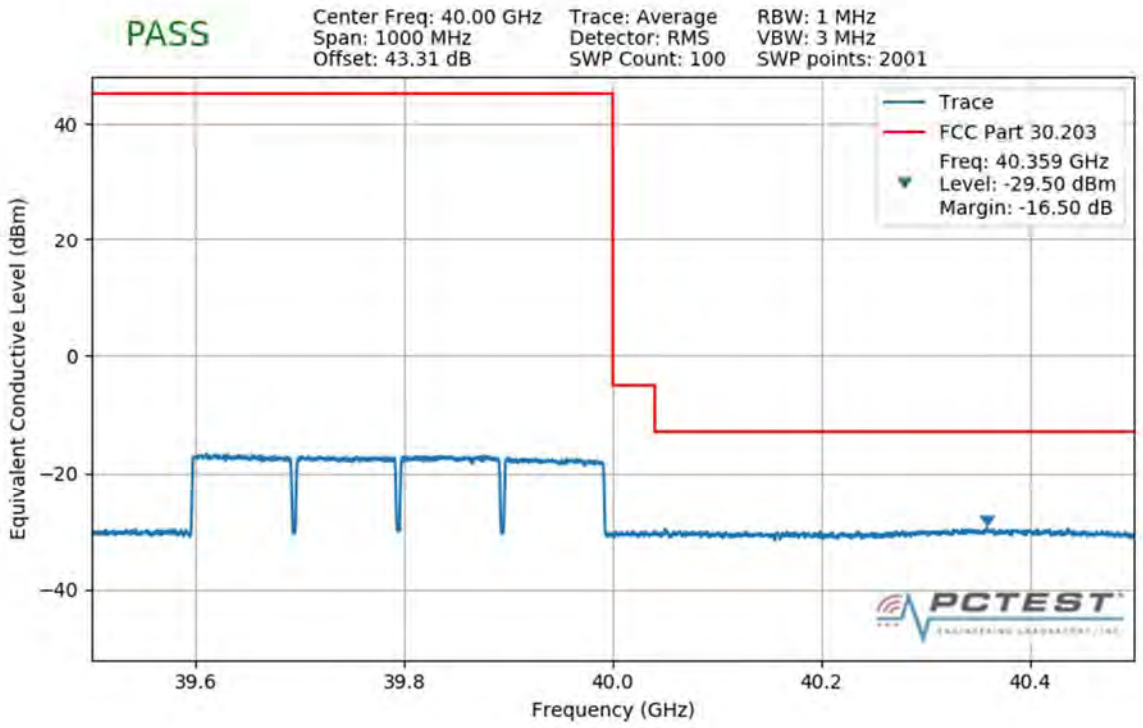
Plot 7-586. Upper Band Edge Plot (4CC 200MHz QPSK 1 RB)



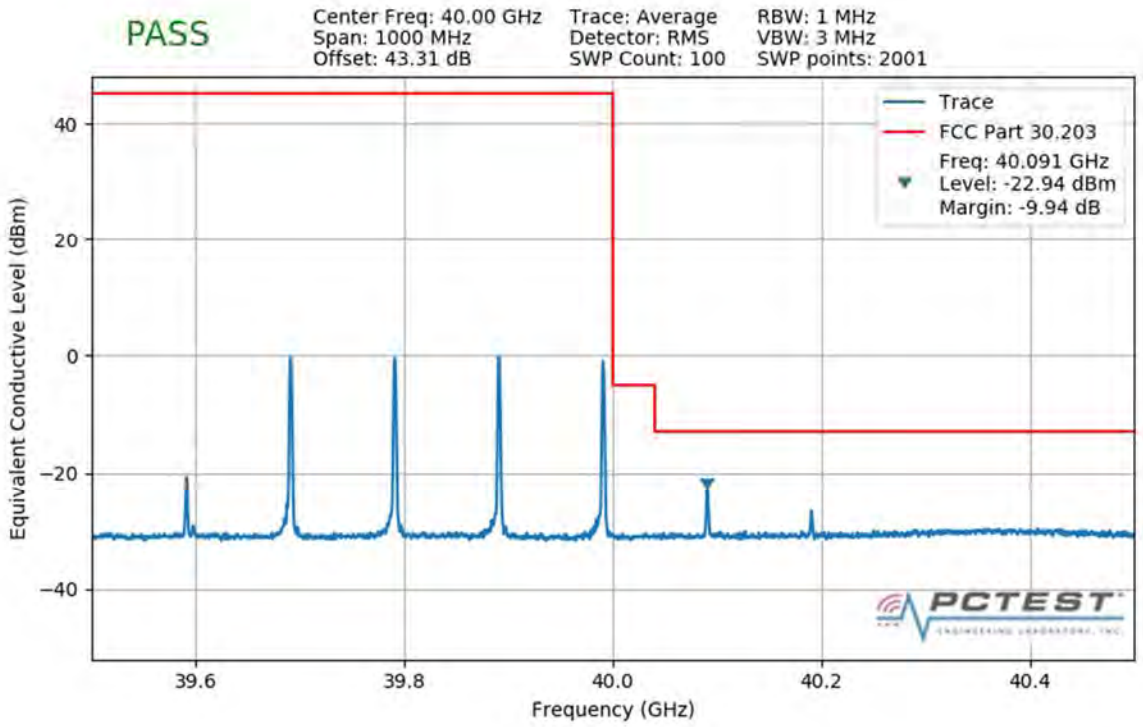
Plot 7-587. Upper Band Edge Plot (4CC 200MHz 16QAM 1 RB)



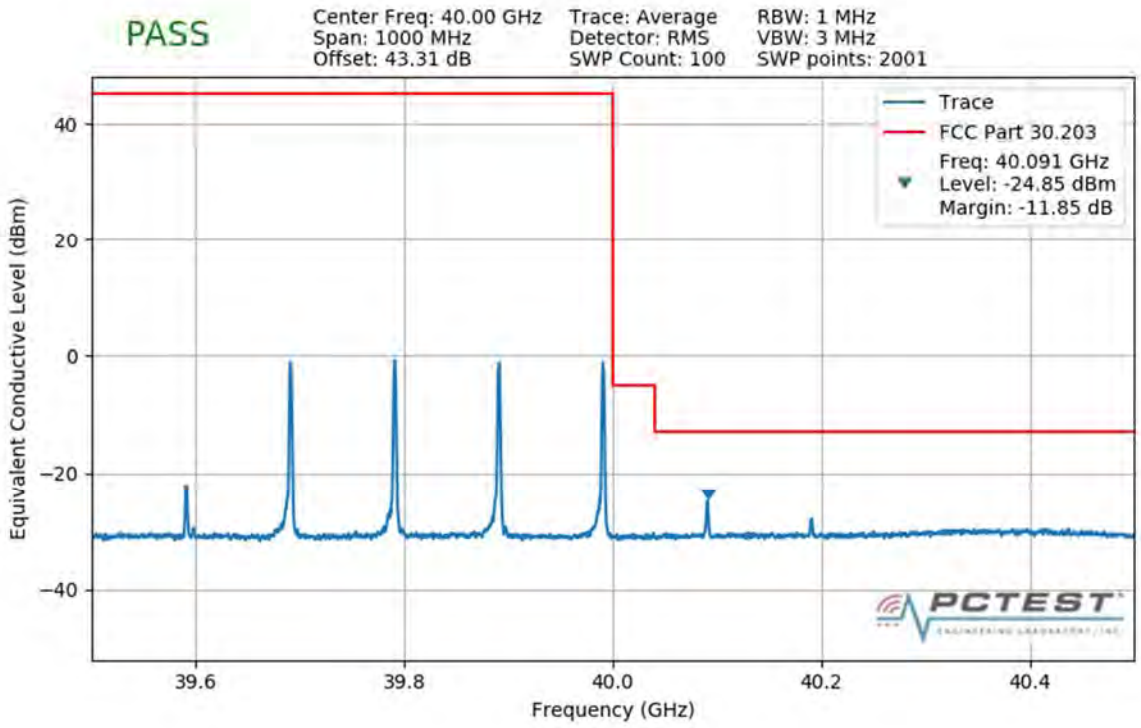
Plot 7-588. Upper Band Edge Plot (4CC 200MHz 64QAM 1 RB)



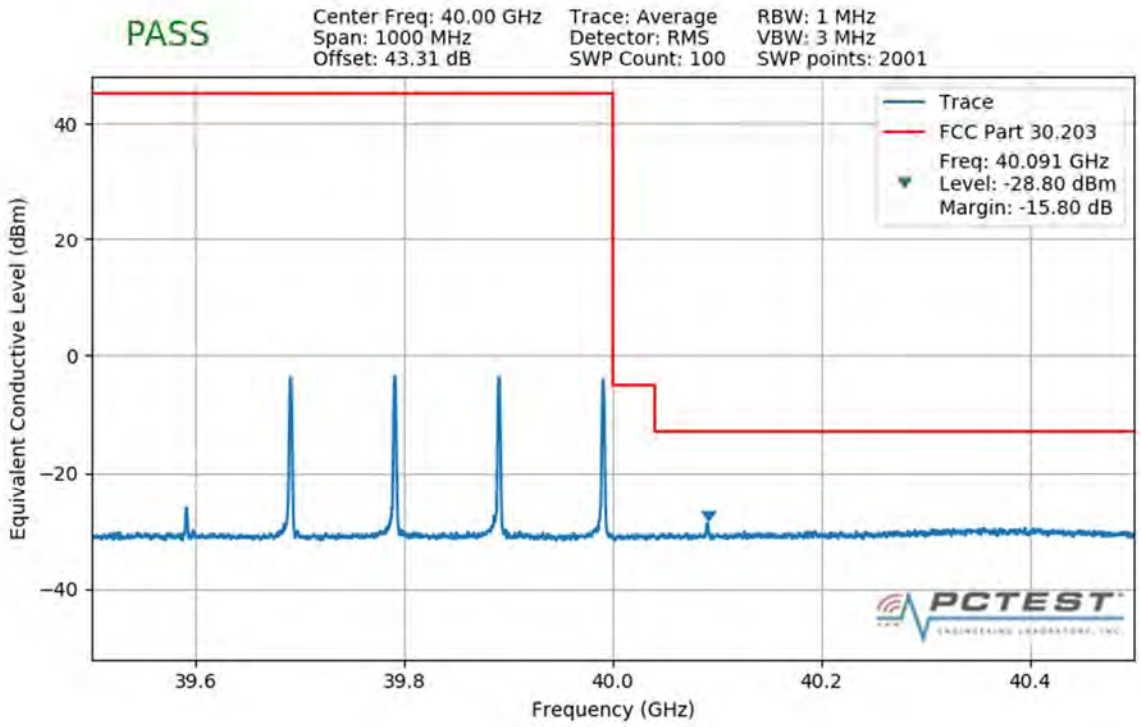
Plot 7-589. Upper Band Edge Plot (4CC 400MHz QPSK Full RB)



Plot 7-590. Upper Band Edge Plot (4CC 400MHz QPSK 1 RB)



Plot 7-591. Upper Band Edge Plot (4CC 400MHz 16QAM 1 RB)



Plot 7-592. Upper Band Edge Plot (4CC 400MHz 64QAM 1 RB)

7.6 Frequency Stability / Temperature Variation

§2.1055

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Test Procedure Used

ANSI C63.5-2015 Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was measured using horn antenna connected to a spectrum analyzer. The EUT was placed inside an environmental chamber. Using a foam plug, the horn antenna measured the frequency of the fundamental signal.

Test Notes

The Frequency Deviation column in the table below is the amount of deviation measured from the center frequency of the Reference measurement (first row).

Frequency Stability Measurements

§2.1055

OPERATING FREQUENCY:	38,496,360,000	Hz
CHANNEL:	2254123	
REFERENCE VOLTAGE:	4.33	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.33	- 30	38,496,190,248	169,752	0.000441
100 %		- 20	38,495,914,531	445,469	0.001157
100 %		- 10	38,496,679,846	-319,846	-0.000831
100 %		0	38,496,629,266	-269,266	-0.000699
100 %		+ 10	38,496,180,622	179,378	0.000466
100 %		+ 20	38,495,976,232	383,768	0.000997
100 %		+ 30	38,495,519,063	840,937	0.002184
100 %		+ 40	38,495,600,004	759,996	0.001974
100 %		+ 50	38,495,593,545	766,455	0.001991
BATT. ENDPOINT	3.46	+ 20	38,496,195,992	164,008	0.000004

Table 7-40. Frequency Stability Data

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

Frequency Stability Measurements

§2.1055

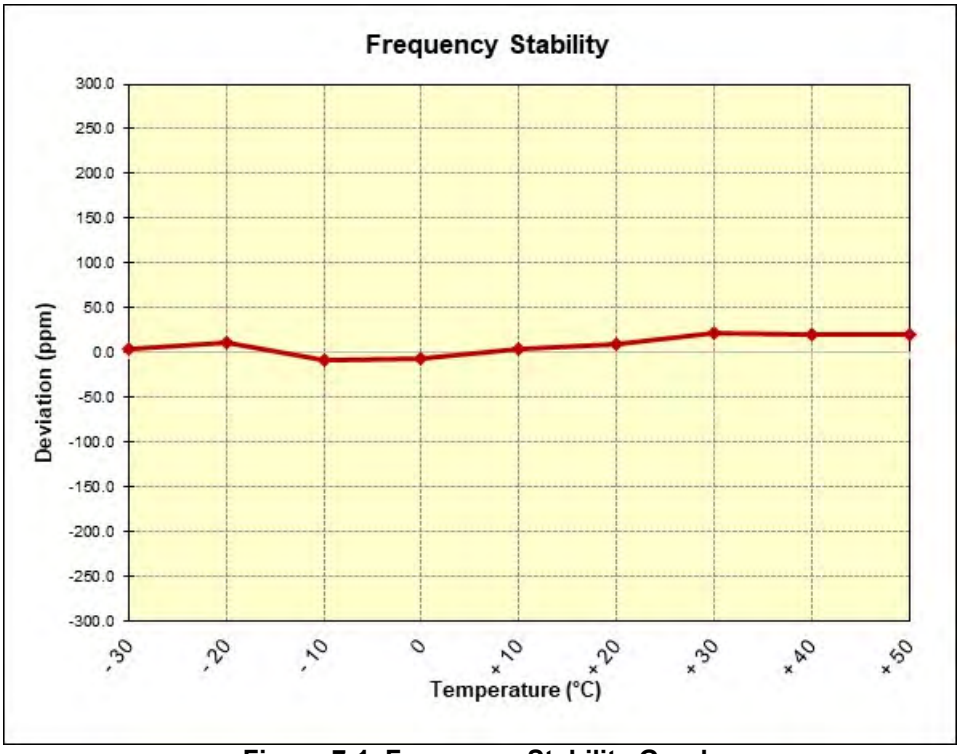


Figure 7-1. Frequency Stability Graph

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG977U** complies with all the requirements of Part 30.

9.0 APPENDIX A

9.1 VDI Mixer Verification Certificate

Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902
Phone: 434-297-3257
Fax: 434-297-3258

Certificate of Conformance

To: PCTEST Engineering Laboratory
6660-B Dobbin Road
Columbia, MD 21045
United States

From: Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902

Shipping Date: 05/14/18 **Today's Date:** 05/14/18

Quantity Shipped	Unit	Description
1	EA	VDIWR12.0SAX WR12SAX - Spectrum Analyzer Extension Module / SN: SAX 252

The VDI product(s) in this shipment meet(s) the guidelines for performance specifications established in accordance with the corresponding Purchase Order. Data presented in the User Guide, where applicable, has been obtained in accordance with VDI's Quality Management System. All instruments, used to obtain data, which require calibration have been calibrated with equipment traceable to the National Institute of Standards and Technology (NIST) and through NIST to the International System of Units (SI).

Authorized Signature
Virginia Diodes, Inc

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Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902
Phone: 434-297-3257
Fax: 434-297-3258

Certificate of Conformance

To: PCTEST Engineering Laboratory
6660-B Dobbin Road
Columbia, MD 21045
United States

From: Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902

Shipping Date: 05/08/18 **Today's Date:** 05/08/18

Quantity Shipped	Unit	Description
1	EA	VDIWR8.0SAX WR8.0SAX - Spectrum Analyzer Extension Module; SN: SAX 253.

The VDI product(s) in this shipment meet(s) the guidelines for performance specifications established in accordance with the corresponding Purchase Order. Data presented in the User Guide, where applicable, has been obtained in accordance with VDI's Quality Management System. All instruments, used to obtain data, which require calibration have been calibrated with equipment traceable to the National Institute of Standards and Technology (NIST) and through NIST to the International System of Units (SI).

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Suite 309
Charlottesville, VA 22902
Phone: 434-297-3257
Fax: 434-297-3258

Certificate of Conformance

To: PCTEST Engineering Laboratory
6660-B Dobbin Road
Columbia, MD 21045
United States

From: Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902

Shipping Date: 05/21/18 **Today's Date:** 05/22/18

Quantity Shipped	Unit	Description
1	EA	VDIWR5.1SAX WR5.1SAX - Spectrum Analyzer Extension Module; SN: SAX 254.

The VDI product(s) in this shipment meet(s) the guidelines for performance specifications established in accordance with the corresponding Purchase Order. Data presented in the User Guide, where applicable, has been obtained in accordance with VDI's Quality Management System. All instruments, used to obtain data, which require calibration have been calibrated with equipment traceable to the National Institute of Standards and Technology (NIST) and through NIST to the International System of Units (SI).

Authorized Signature
Virginia Diodes, Inc

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