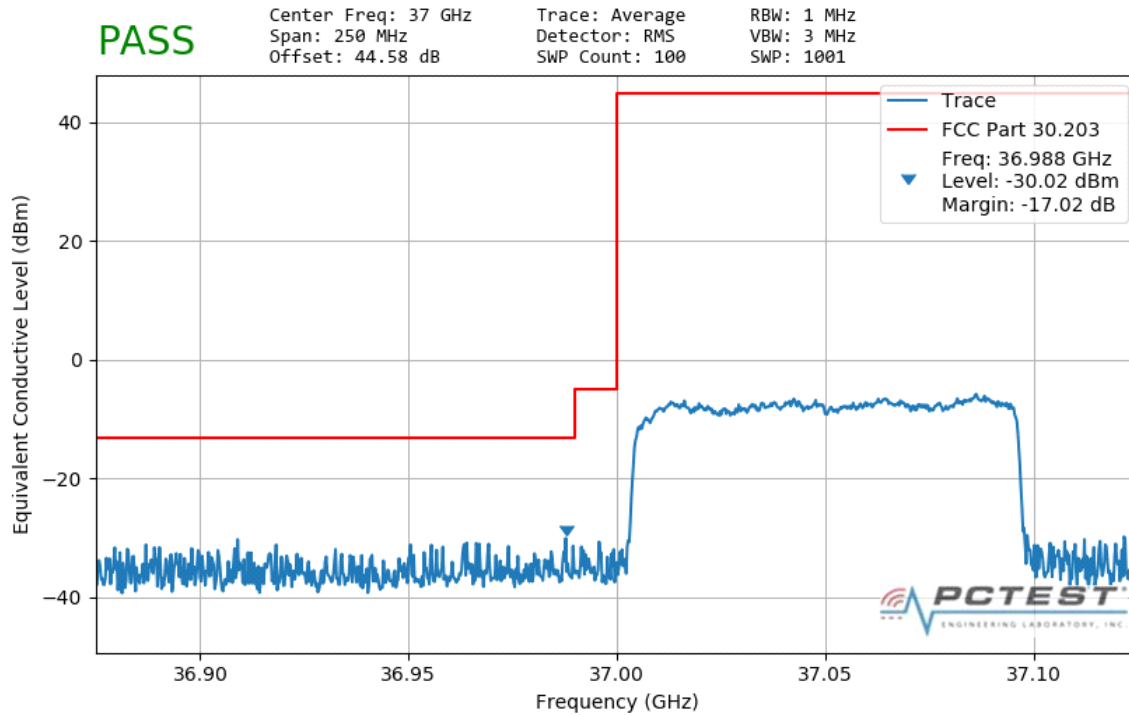
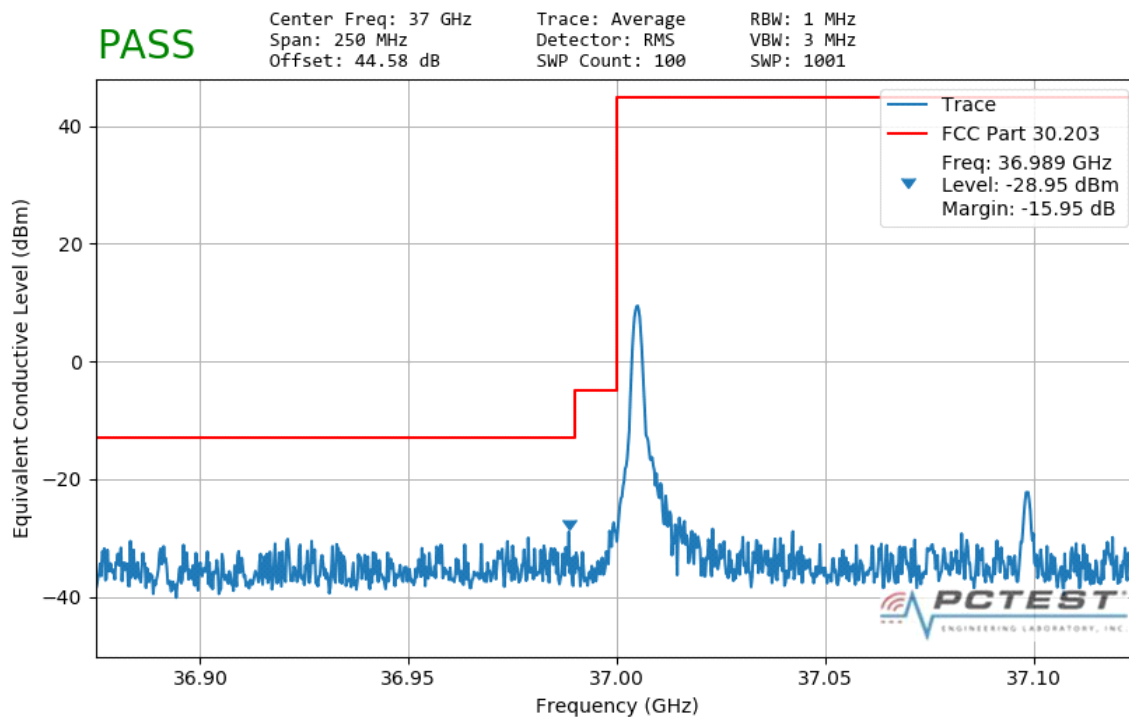


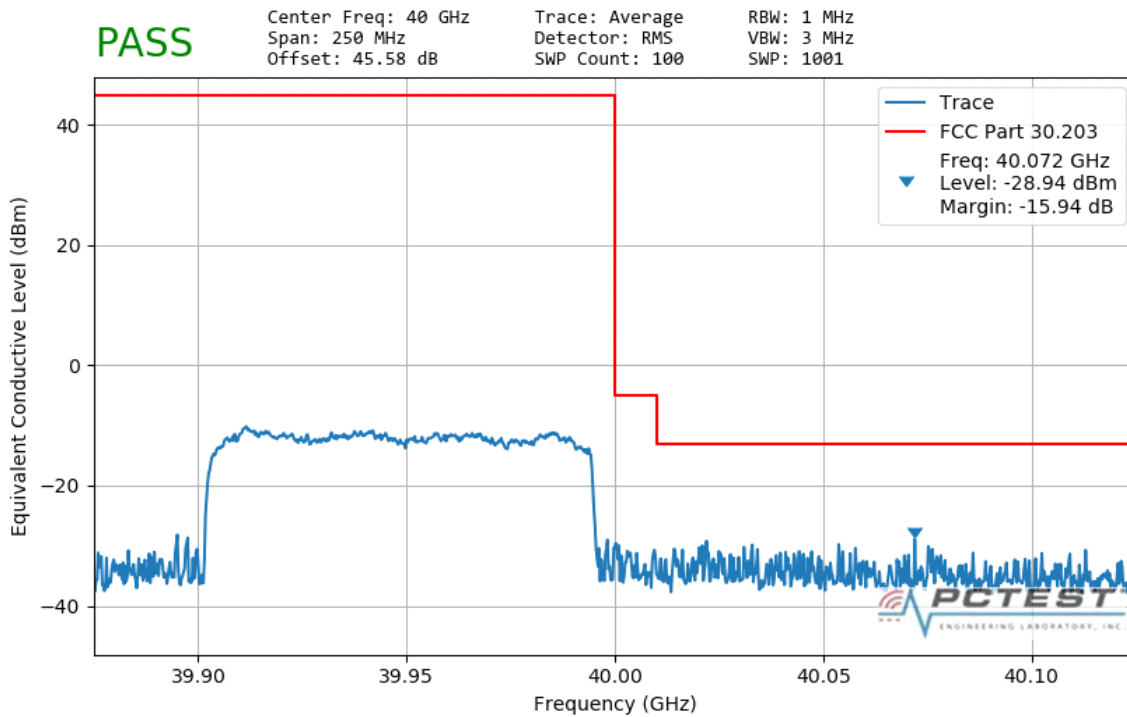


Plot 7-206. Ant3 Lower Band Edge (100MHz-1CC – QPSK Full RB)

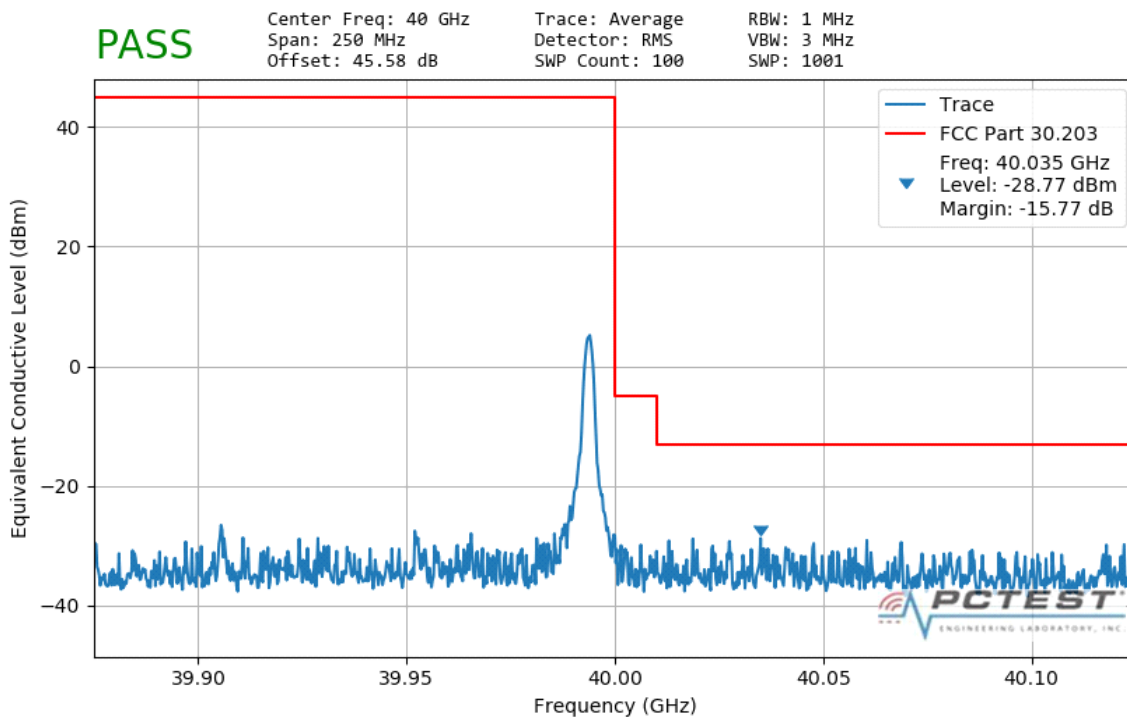


Plot 7-207. Ant3 Lower Band Edge (100MHz-1CC – QPSK 1 RB)

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 197 of 210

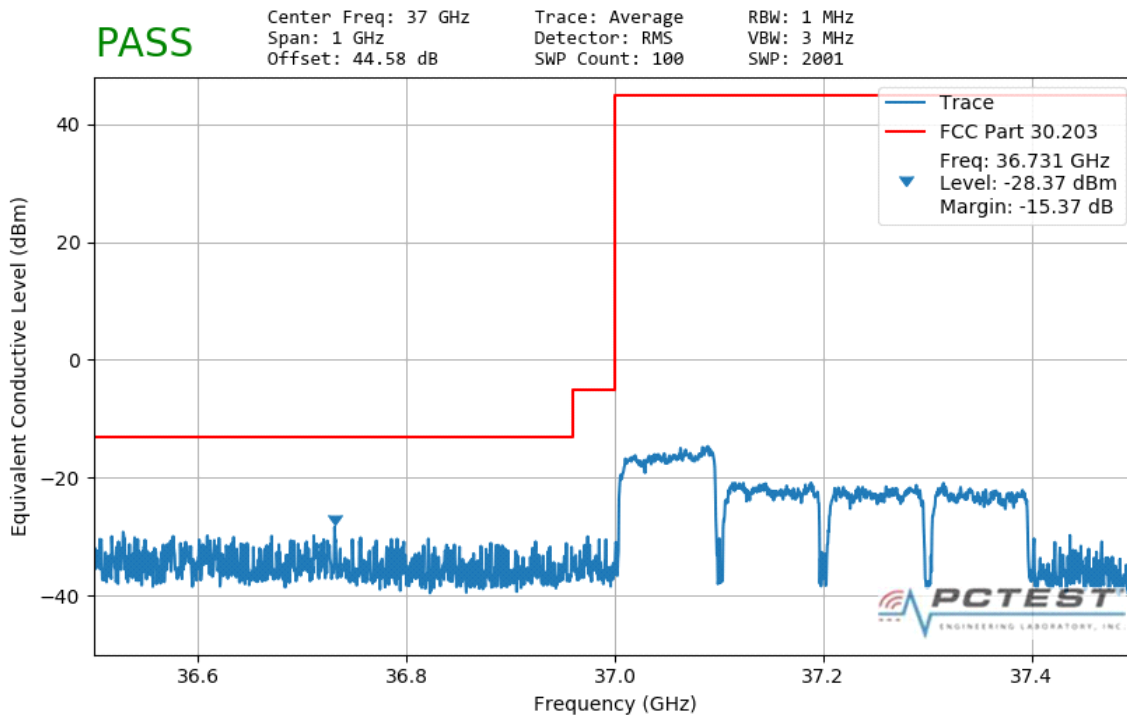


Plot 7-208. Ant3 Upper Band Edge (100MHz-1CC – QPSK Full RB)

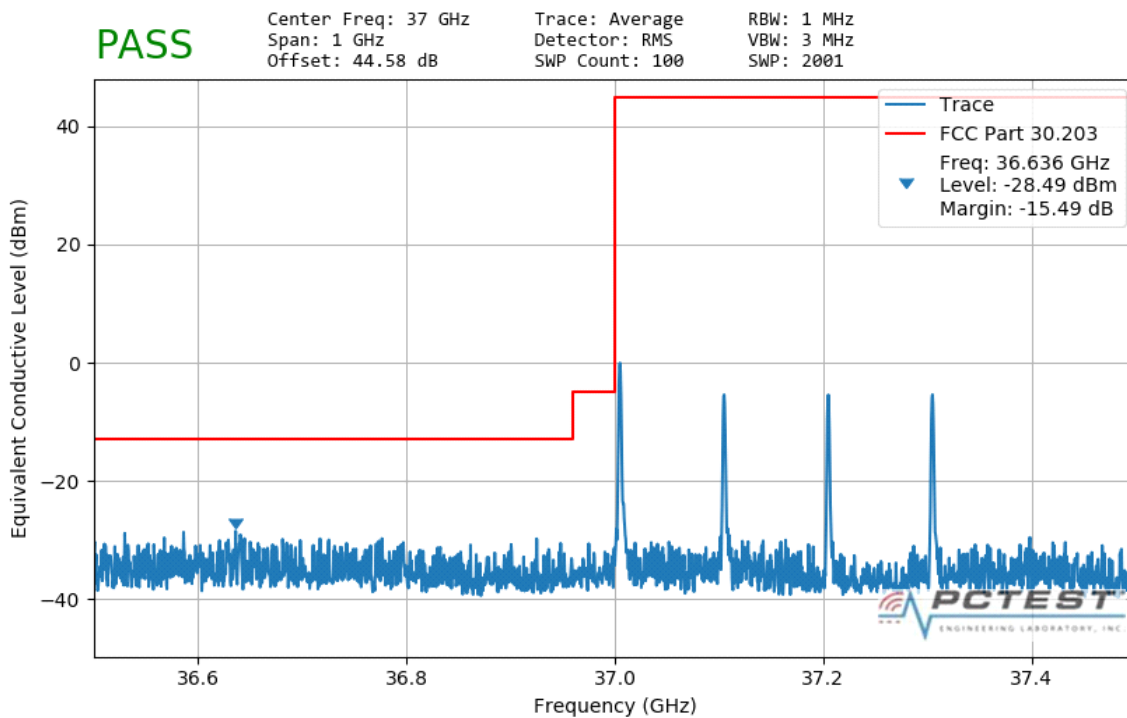


Plot 7-209. Ant3 Upper Band Edge (100MHz-1CC – QPSK 1 RB)

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 198 of 210

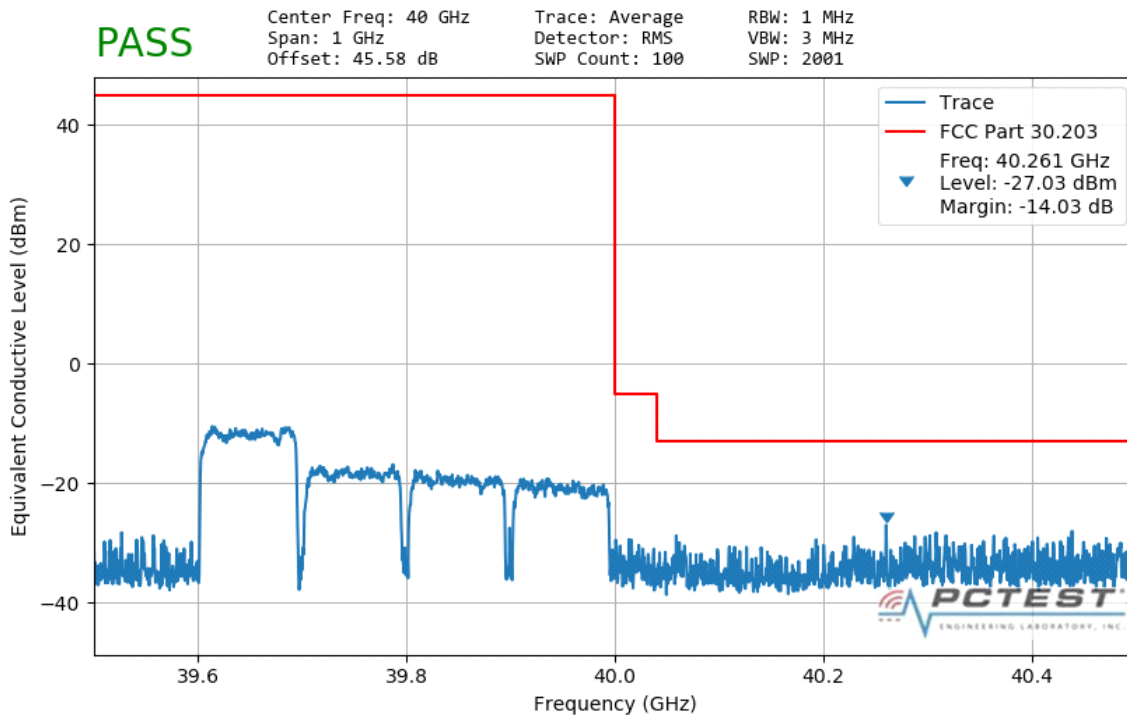


Plot 7-210. Ant3 Lower Band Edge (100MHz-4CC – QPSK Full RB)

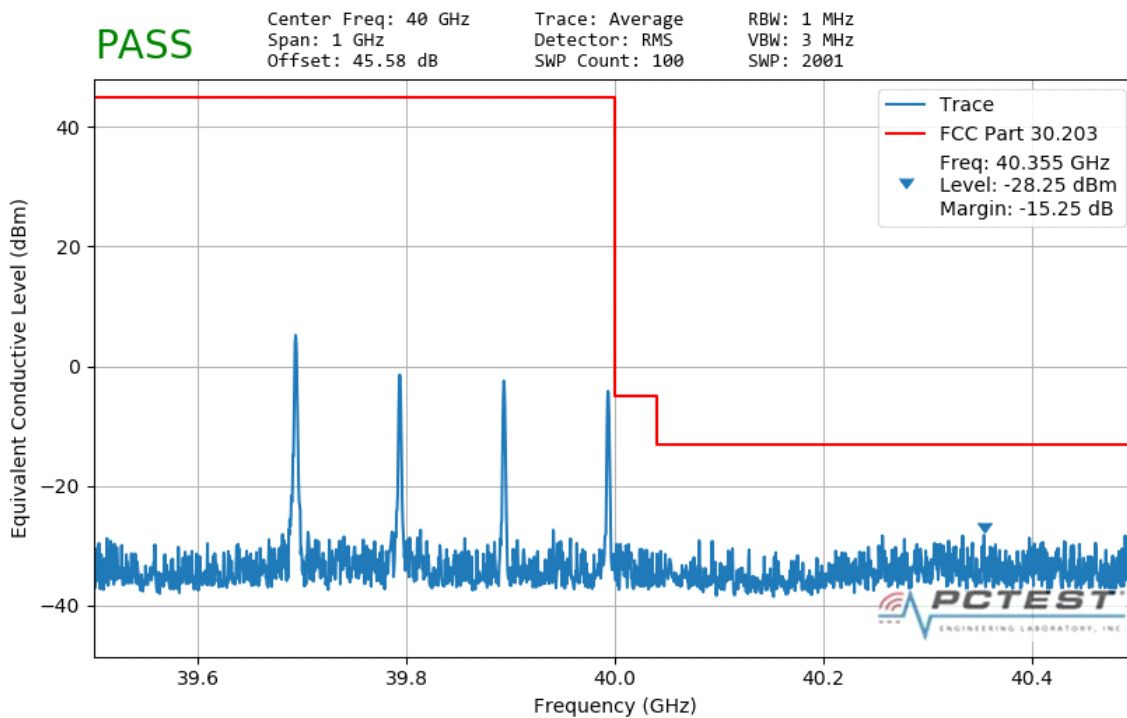


Plot 7-211. Ant3 Lower Band Edge (100MHz-4CC – QPSK 1 RB)

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 199 of 210



Plot 7-212. Ant3 Upper Band Edge (100MHz-4CC – QPSK Full RB)



Plot 7-213. Ant3 Upper Band Edge (100MHz-4CC – QPSK 1 RB)

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 200 of 210

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
KDB 842590 D01 v01 Section 4.5

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).

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 201 of 210

Frequency Stability Measurements (Band n261) §2.1055

OPERATING FREQUENCY: 27,922,080,000 Hz
CHANNEL: 2077867
REFERENCE VOLTAGE: 3.90 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.90	+ 20 (Ref)	27,996,080,000	0	0.0000000
100 %		- 30	27,882,080,000	114,000,000	0.4082790
100 %		- 20	27,917,080,000	79,000,000	0.2829302
100 %		- 10	27,877,080,000	119,000,000	0.4261860
100 %		0	27,848,080,000	148,000,000	0.5300465
100 %		+ 10	27,911,080,000	85,000,000	0.3044186
100 %		+ 20	27,836,080,000	160,000,000	0.5730232
100 %		+ 30	28,007,080,000	-11,000,000	-0.0393953
100 %		+ 40	27,961,080,000	35,000,000	0.1253488
100 %		+ 50	27,995,080,000	1,000,000	0.0035814
BATT. ENDPOINT		+ 20	27,835,080,000	161,000,000	0.5766046

Table 7-101. Frequency Stability Data (n261)

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.

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 202 of 210

Frequency Stability Measurements (Band n261)

§2.1055

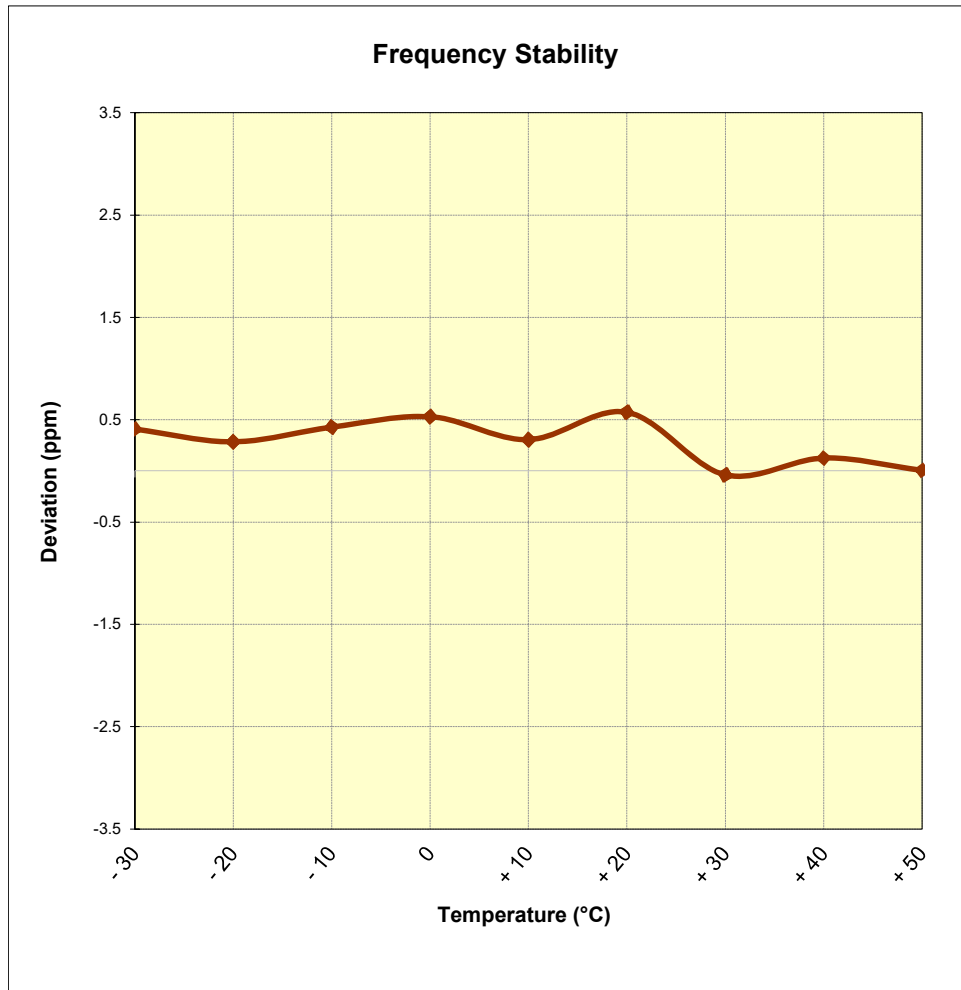


Table 7-102. Frequency Stability Graph (n261)

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 203 of 210

Frequency Stability Measurements (Band n260)

§2.1055

OPERATING FREQUENCY: 38,499,744,000 Hz
 CHANNEL: 2254123
 REFERENCE VOLTAGE: 3.90 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.90	+ 20 (Ref)	38,568,744,000	0	0.0000000
100 %		- 30	38,583,744,000	-15,000,000	-0.0389613
100 %		- 20	38,506,744,000	62,000,000	0.1610400
100 %		- 10	38,621,744,000	-53,000,000	-0.1376633
100 %		0	38,578,744,000	-10,000,000	-0.0259742
100 %		+ 10	38,521,744,000	47,000,000	0.1220787
100 %		+ 20	38,534,744,000	34,000,000	0.0883123
100 %		+ 30	38,597,744,000	-29,000,000	-0.0753252
100 %		+ 40	38,608,744,000	-40,000,000	-0.1038968
100 %		+ 50	38,616,744,000	-48,000,000	-0.1246762
BATT. ENDPOINT	3.60	+ 20	38,550,744,000	18,000,000	0.0467536

Table 7-103. Frequency Stability Data (n260)

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.

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 204 of 210

Frequency Stability Measurements (Band n260)

§2.1055

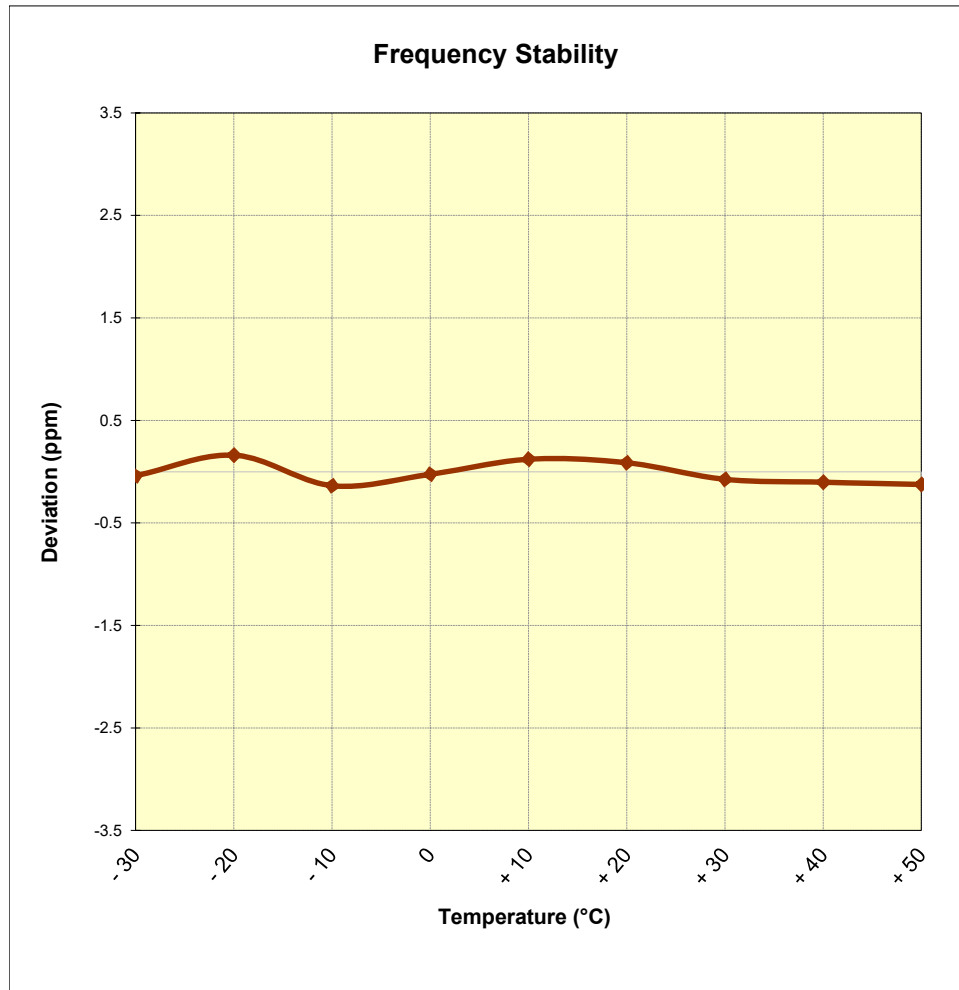


Table 7-104. Frequency Stability Graph (n260)

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset	Page 205 of 210	

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset** **FCC ID: ZNFV600VM** complies with all the requirements of Part 30.

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 206 of 210

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
7185 Oakland Mills Road
Columbia, MD 21046
United States

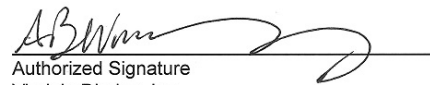
From: Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902

Packing List No: 193065

Today's Date: 10/02/19

Quantity	Shipped	Unit	Description	Order-Job Number
1	EA	VDIWR19.0SAX WR19SAX / SN: SAX 411	19329-01	

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

Page 1 of 1

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 207 of 210

**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

<u>Shipped</u>	<u>Unit</u>	<u>Description</u>
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

Page 1 of 1

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 208 of 210

© 2020 PCTEST

V1.0

All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

**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

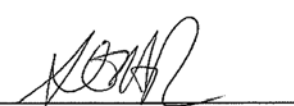
From: Virginia Diodes, Inc
979 2nd St. SE
Suite 309
Charlottesville, VA 22902

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).


Authorized Signature
Virginia Diodes, Inc

Page 1 of 1

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 209 of 210

© 2020 PCTEST

V1.0

All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.



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: 05/21/18

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

Page 1 of 1

FCC ID: ZNFV600VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911250199-06.ZNF	Test Dates: 11/25/2019-1/17/2020	EUT Type: Portable Handset		Page 210 of 210

© 2020 PCTEST

V1.0

All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.