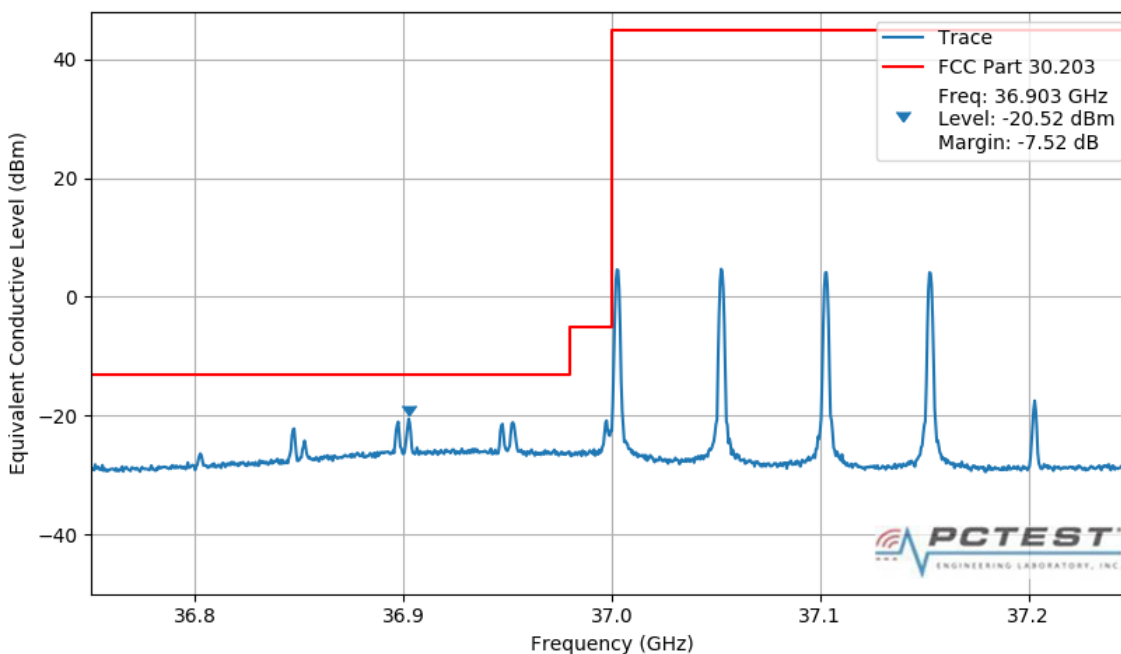


QTM 1 - V

PASS

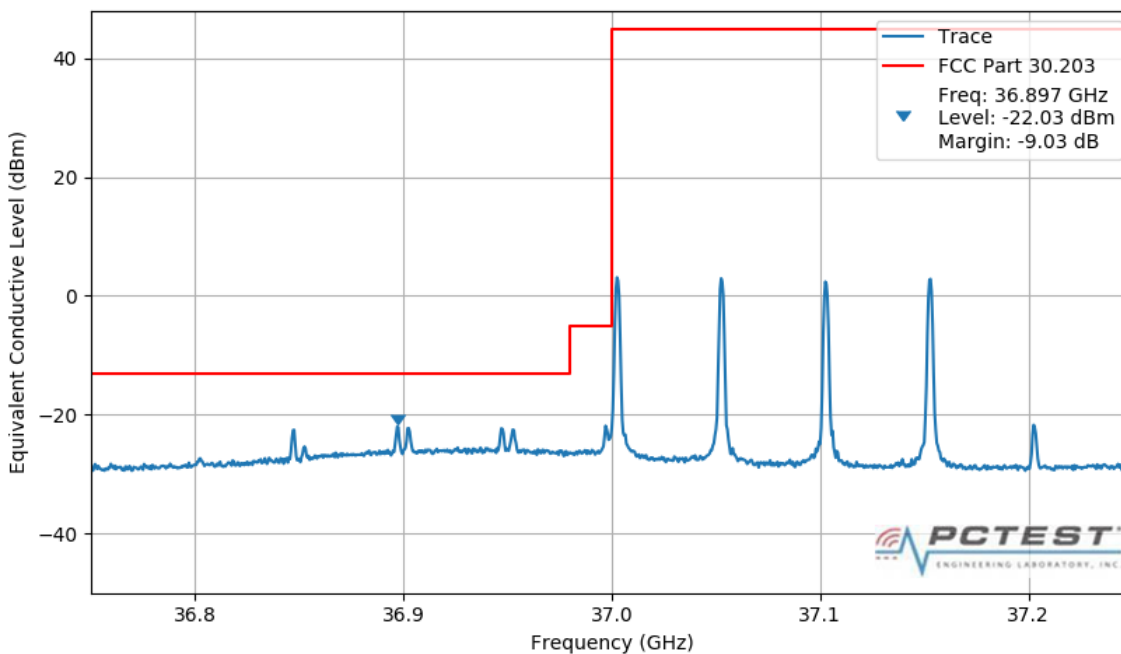
Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 1001
Span: 500 MHz Detector: RMS VBW: 3 MHz
Ref Level: 47.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-451. Band Edge Plot (4CC 50M QPSK Low Channel – 1 RB 0 offset)

PASS

Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 1001
Span: 500 MHz Detector: RMS VBW: 3 MHz
Ref Level: 47.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-452. Band Edge Plot (4CC 50M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 264 of 304

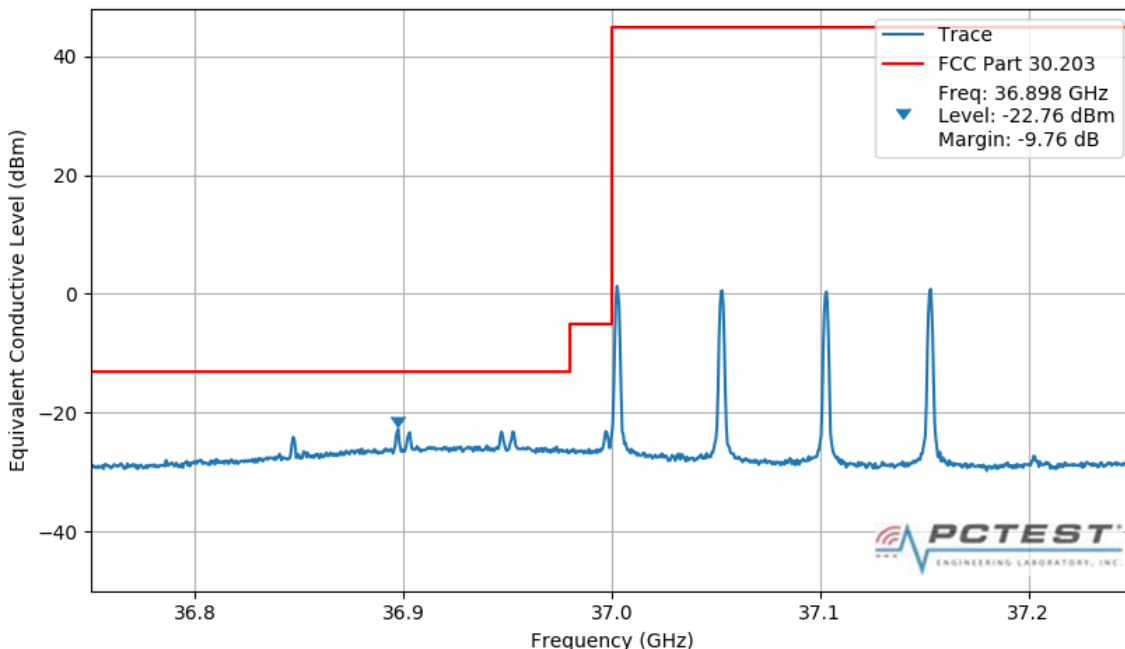
PASS

Center Freq: 37.00 GHz
Span: 500 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-453. Band Edge Plot (4CC 50M 64QAM Low Channel – 1 RB 0 offset)

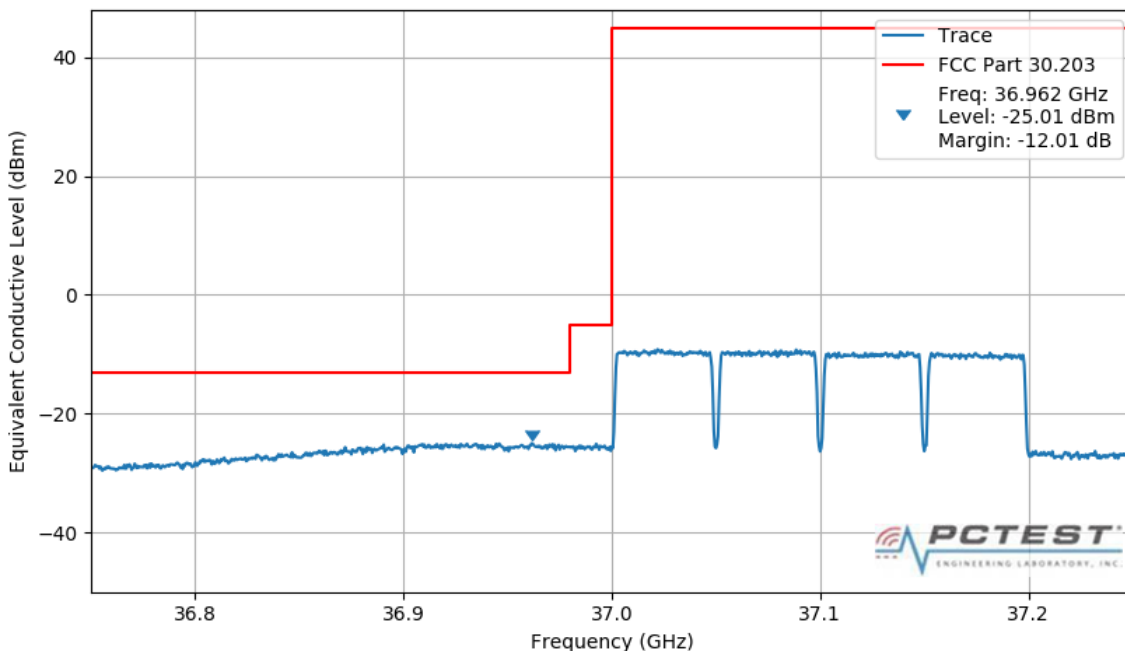
PASS

Center Freq: 37.00 GHz
Span: 500 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-454. Band Edge Plot (4CC 50M QPSK Low Channel – 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 265 of 304

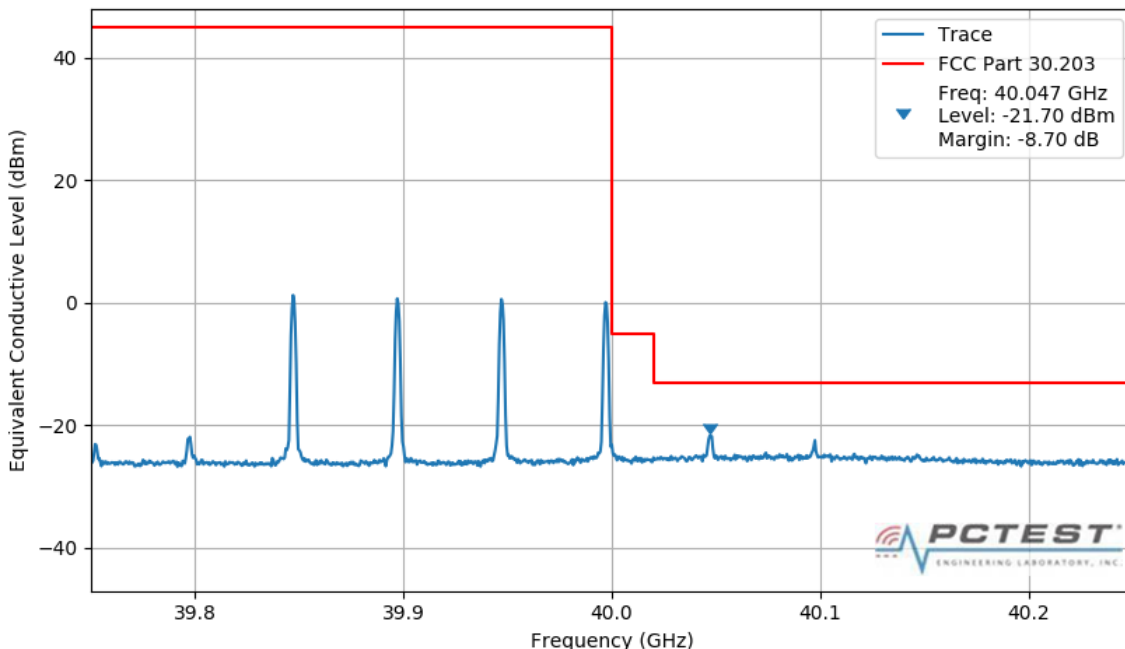
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-455. Band Edge Plot (4CC 50M QPSK Hi Channel- 1 RB 31 offset)

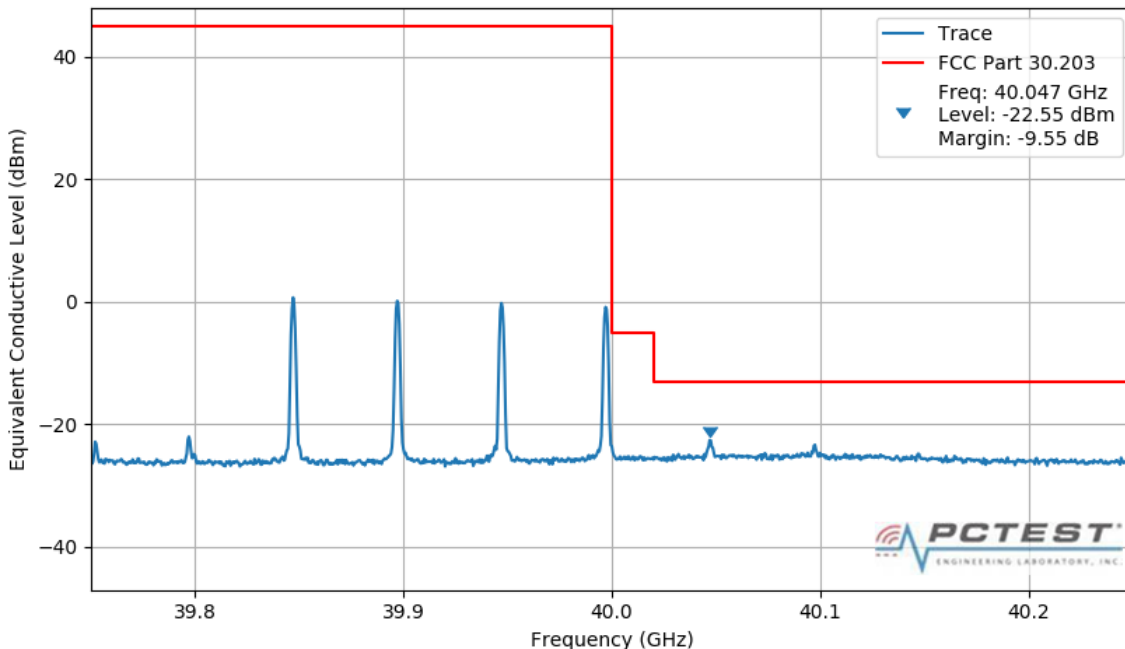
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-456. Band Edge Plot (4CC 50M 16QAM Hi Channel- 1 RB 31 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 266 of 304

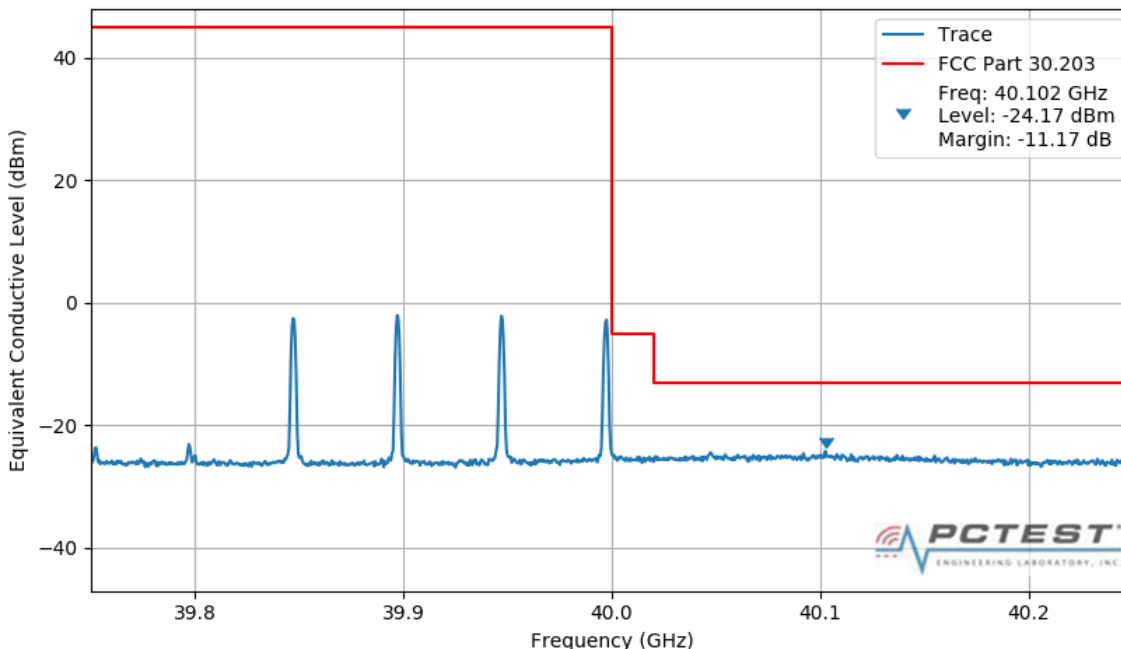
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-457. Band Edge Plot (4CC 50M 64QAM Hi Channel – 1 RB 31 offset)

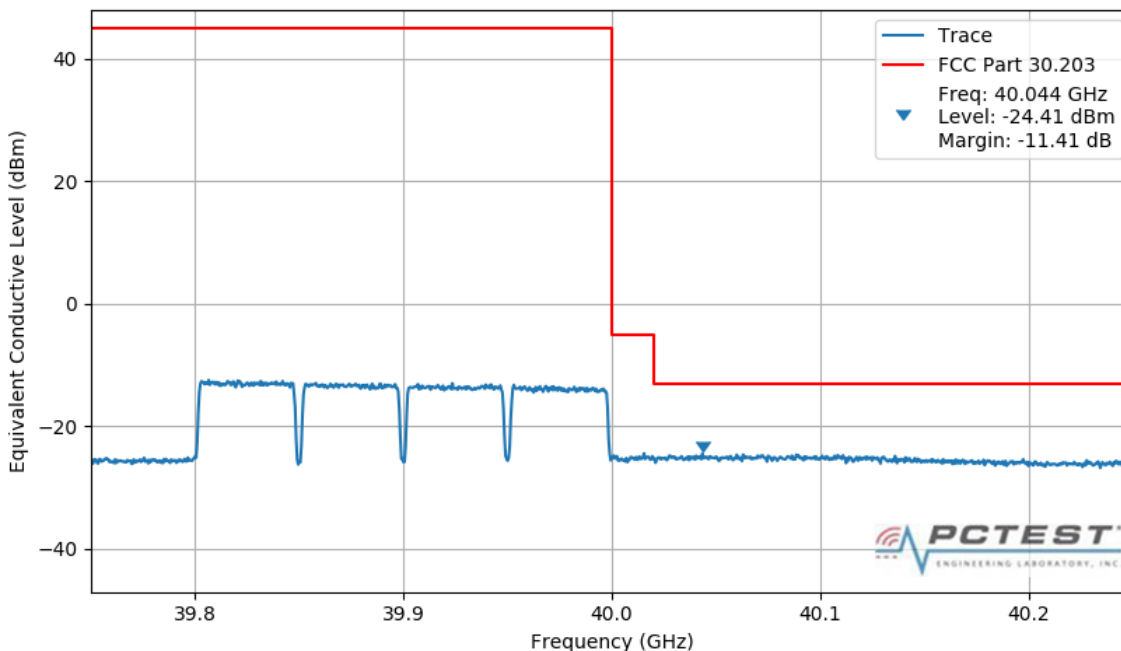
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-458. Band Edge Plot (4CC 50M QPSK Hi Channel– 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 267 of 304

QTM 1 - H + V

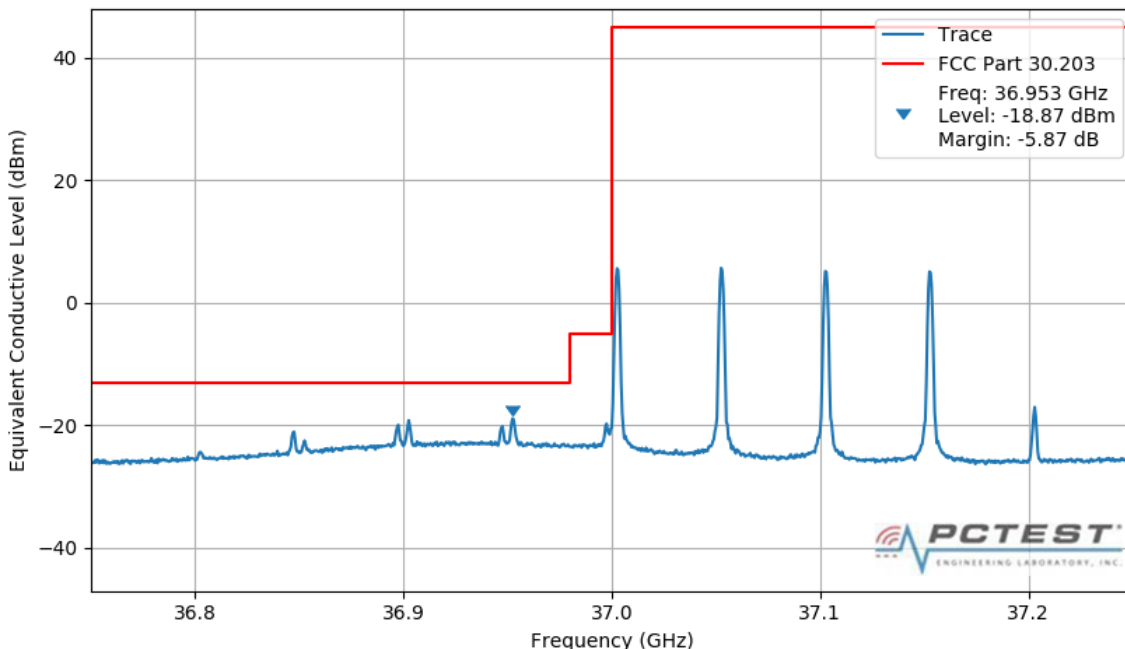
PASS

Center Freq: 37.00 GHz
Span: 500 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-459. Band Edge Plot (4CC 50M QPSK Low Channel – 1 RB 0 offset)

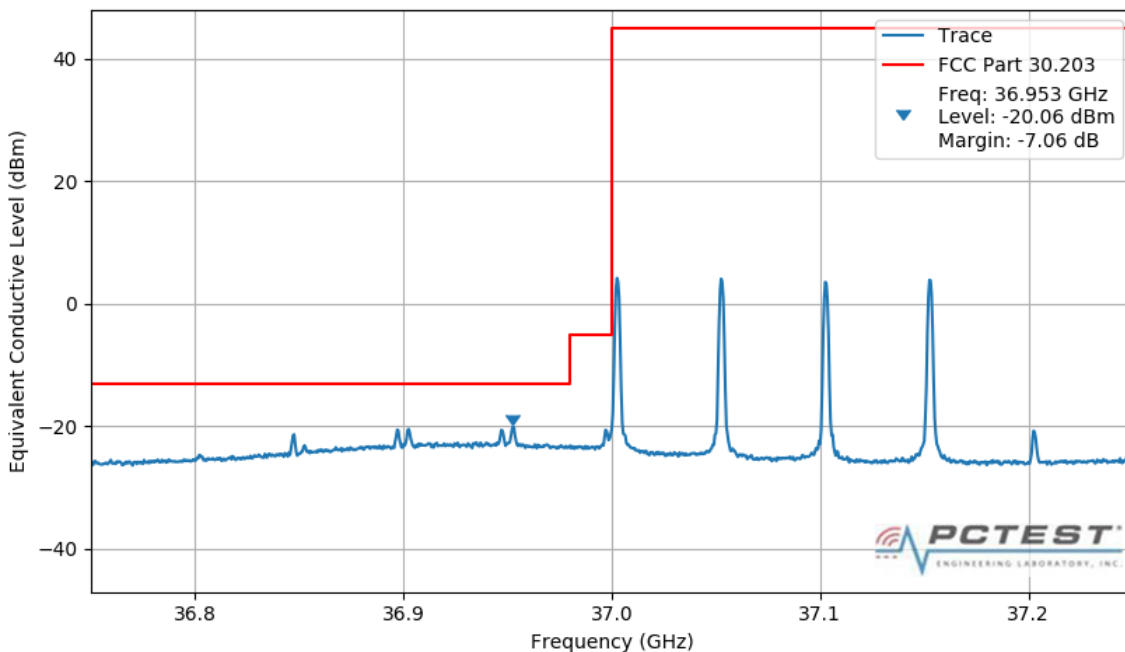
PASS

Center Freq: 37.00 GHz
Span: 500 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-460. Band Edge Plot (4CC 50M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 268 of 304

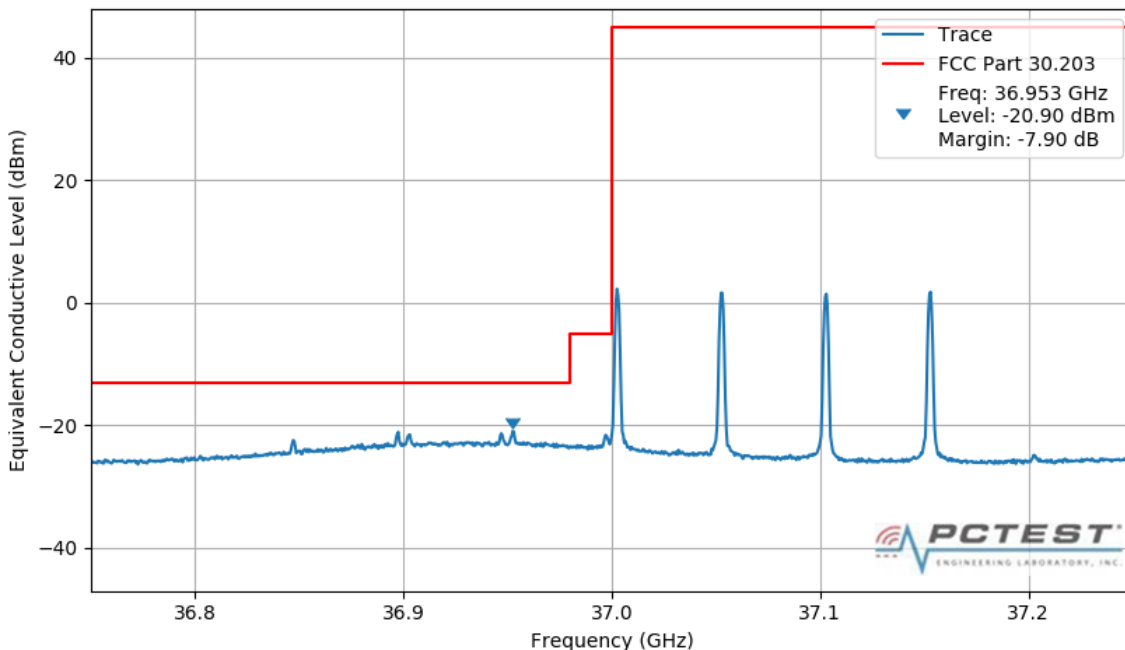
PASS

Center Freq: 37.00 GHz
Span: 500 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-461. Band Edge Plot (4CC 50M 64QAM Low Channel – 1 RB 0 offset)

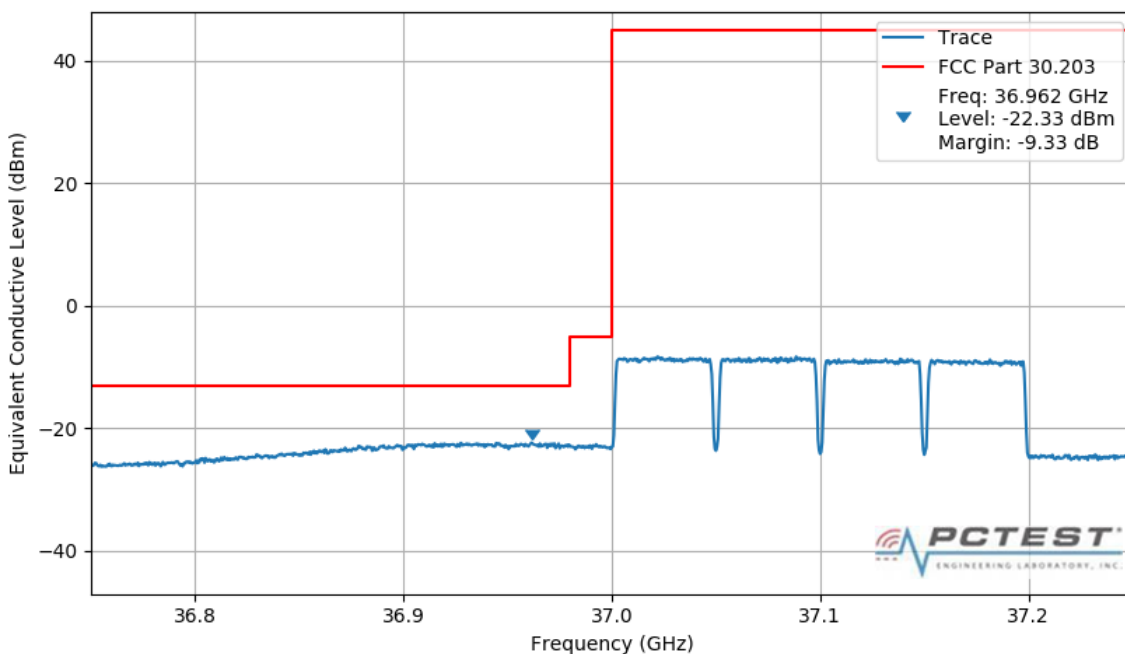
PASS

Center Freq: 37.00 GHz
Span: 500 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-462. Band Edge Plot (4CC 50M QPSK Low Channel – 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 269 of 304

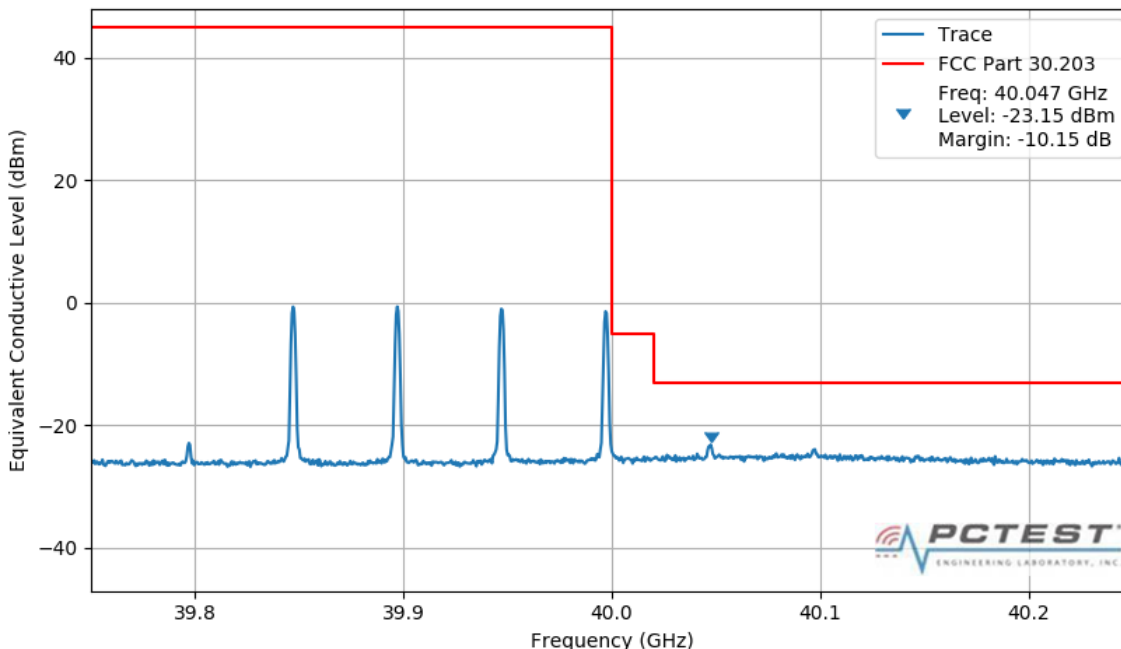
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: BLANK
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-463. Band Edge Plot (4CC 50M QPSK Hi Channel- 1 RB 0 offset)

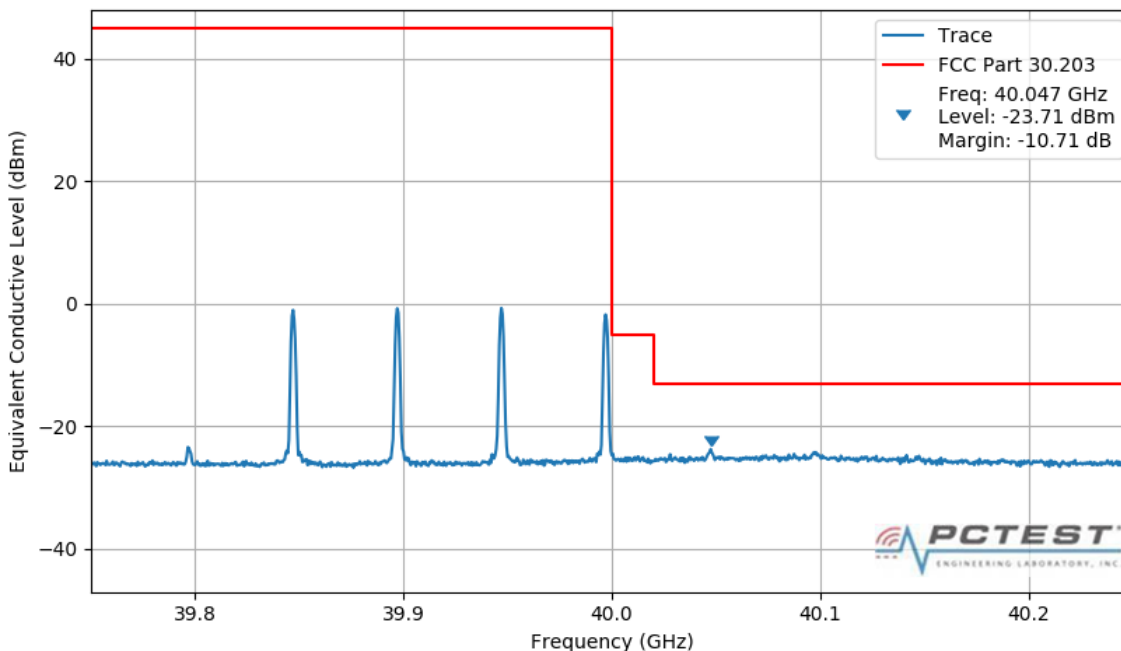
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: BLANK
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-464. Band Edge Plot (4CC 50M 16QAM Hi Channel- 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 270 of 304

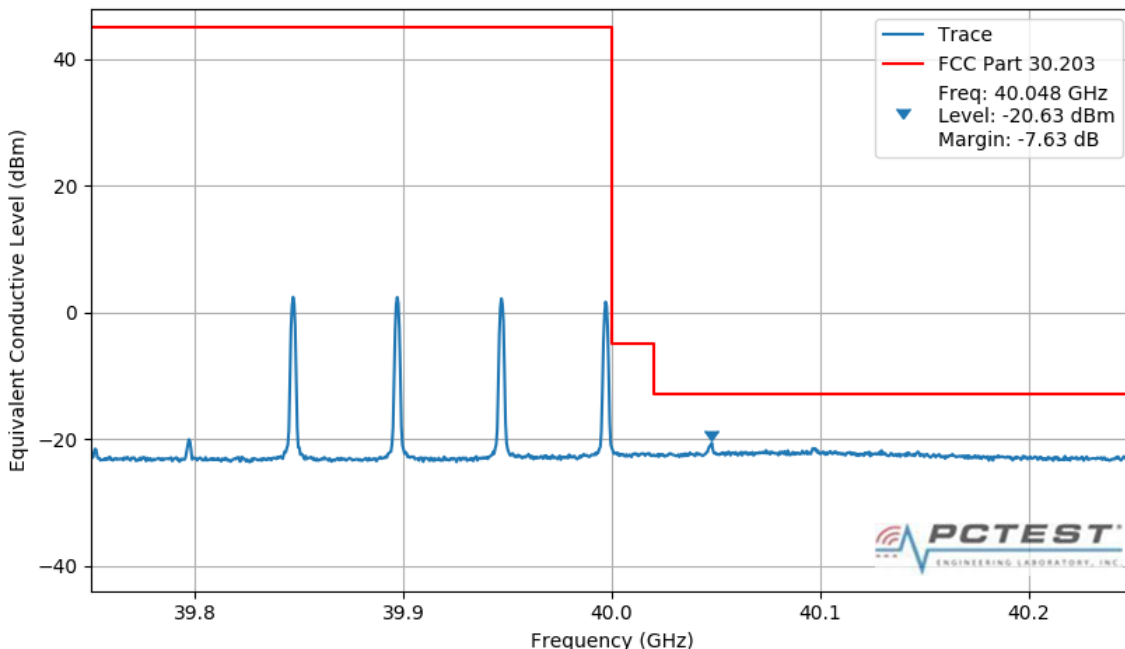
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-465. Band Edge Plot (4CC 50M 64QAM Hi Channel – 1 RB 0 offset)

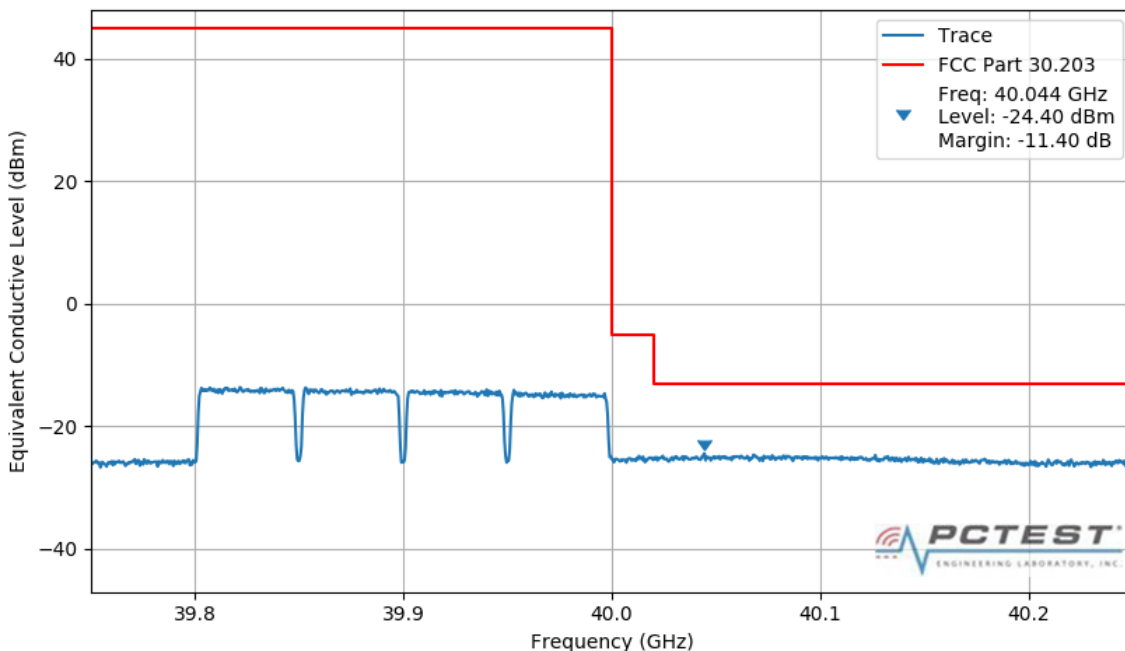
PASS

Center Freq: 40.00 GHz
Span: 500 MHz
Ref Level: 48.57 dBm

Trace: BLANK
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-466. Band Edge Plot (4CC 50M QPSK Hi Channel- 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 271 of 304

7.5.9 N260 4CC 100MHz Bandwidth Band Edges QTM 0 - H

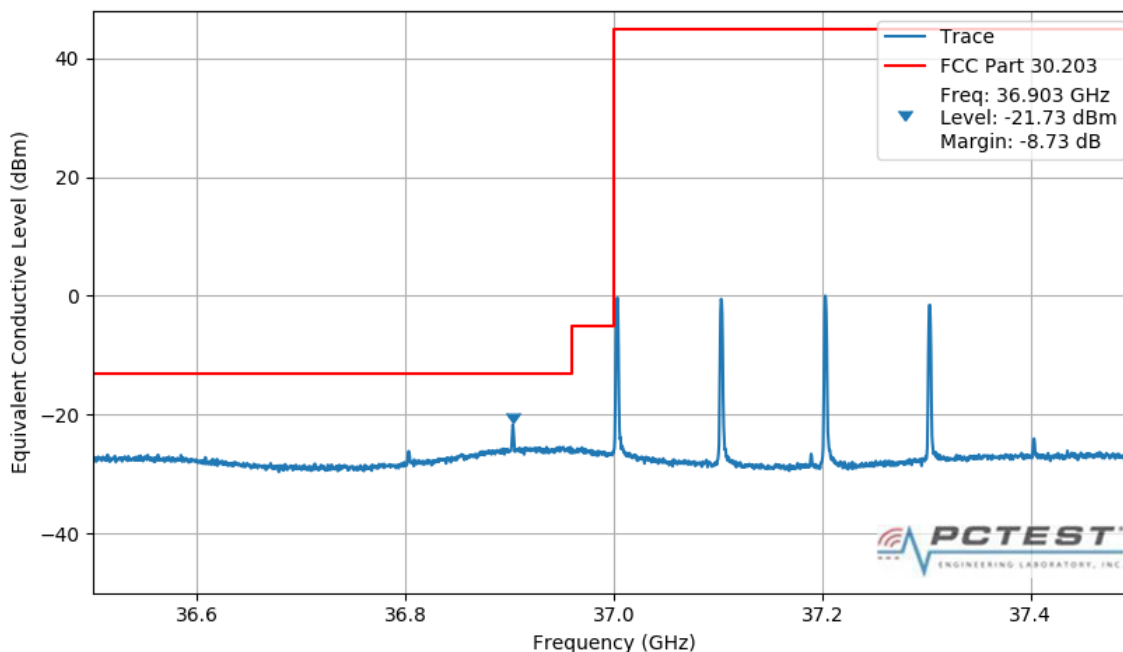
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-467. Band Edge Plot (4CC 100M QPSK Low Channel – 1 RB 0 offset)

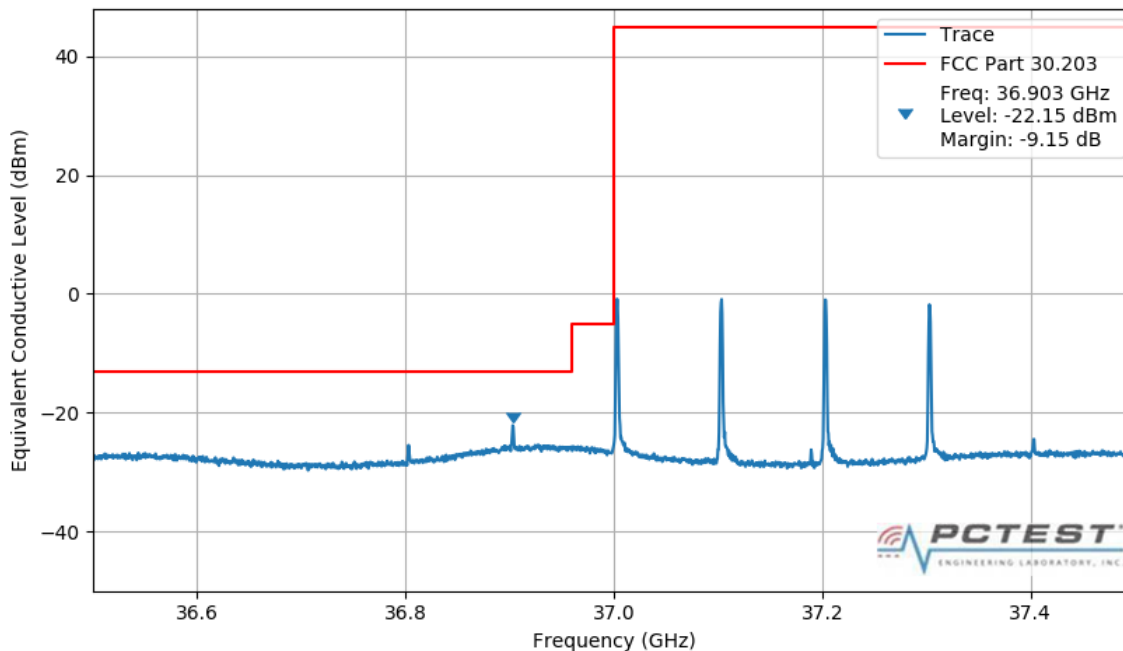
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-468. Band Edge Plot (4CC 100M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 272 of 304

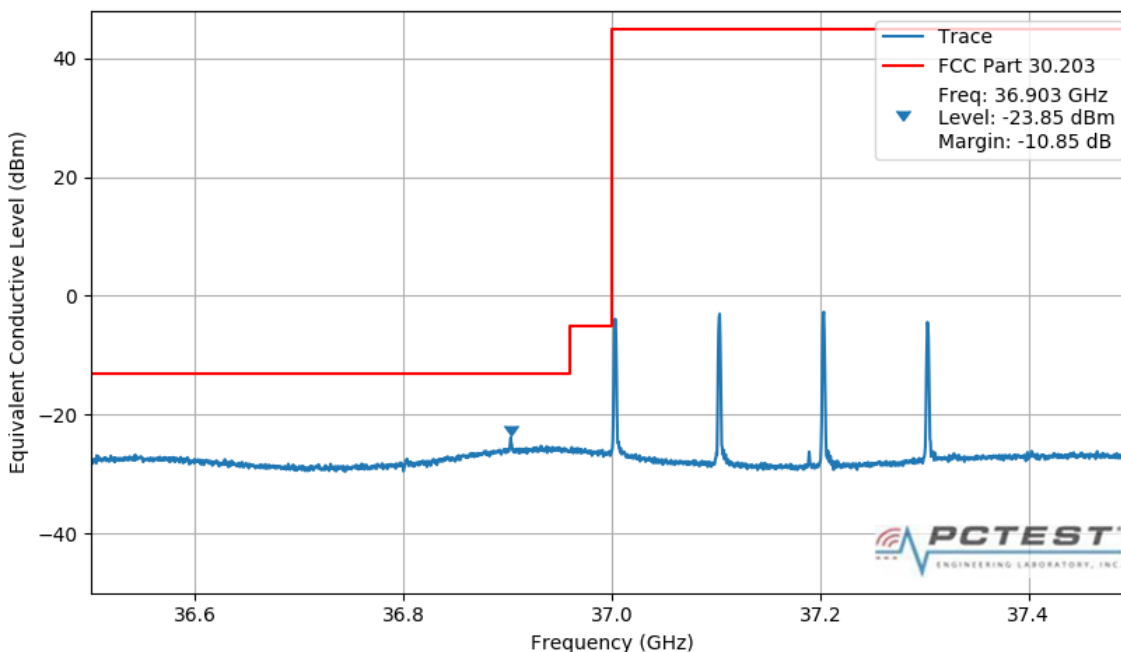
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-469. Band Edge Plot (4CC 100M 64QAM Low Channel – 1 RB 0 offset)

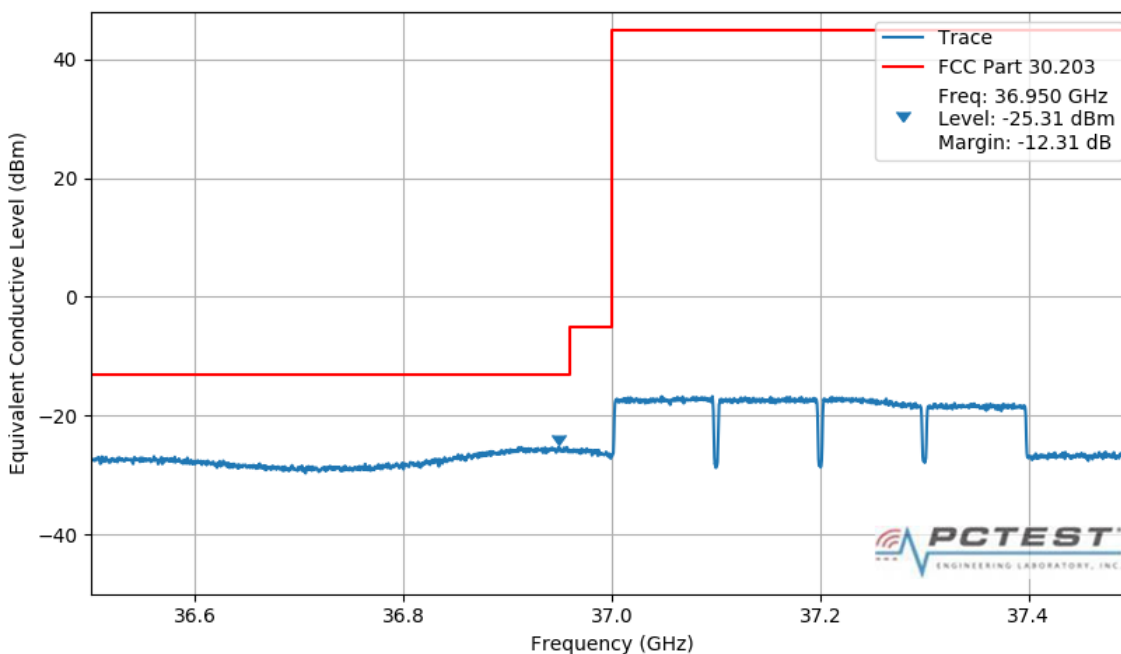
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-470. Band Edge Plot (4CC 100M QPSK Low Channel – 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 273 of 304

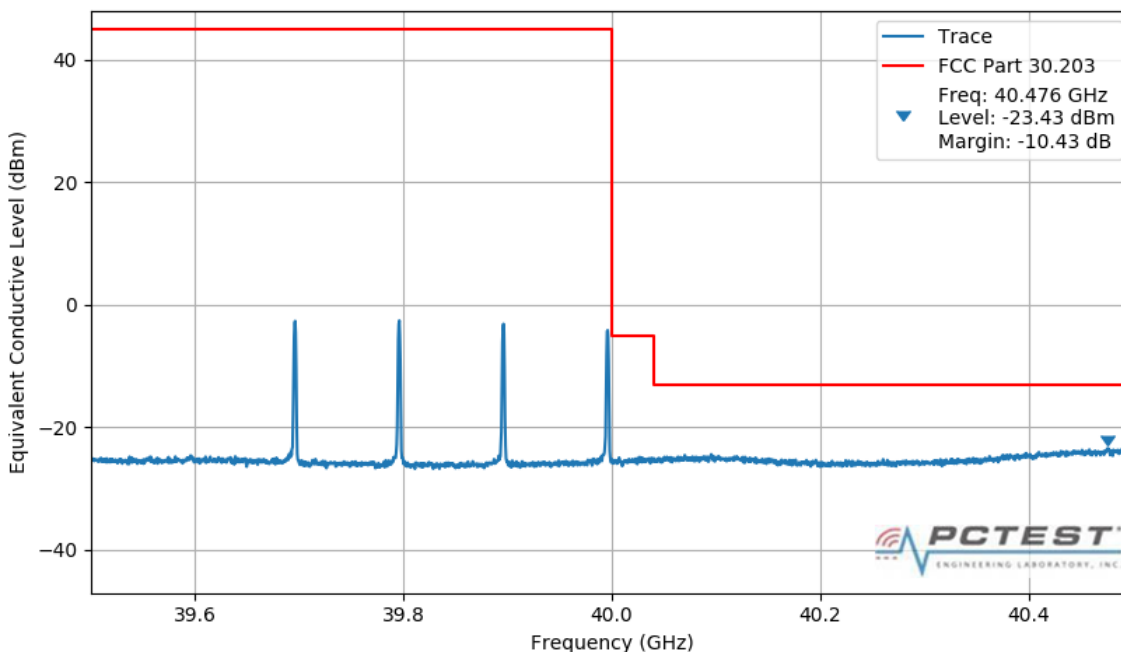
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-471. Band Edge Plot (4CC 100M QPSK Hi Channel- 1 RB 65 offset)

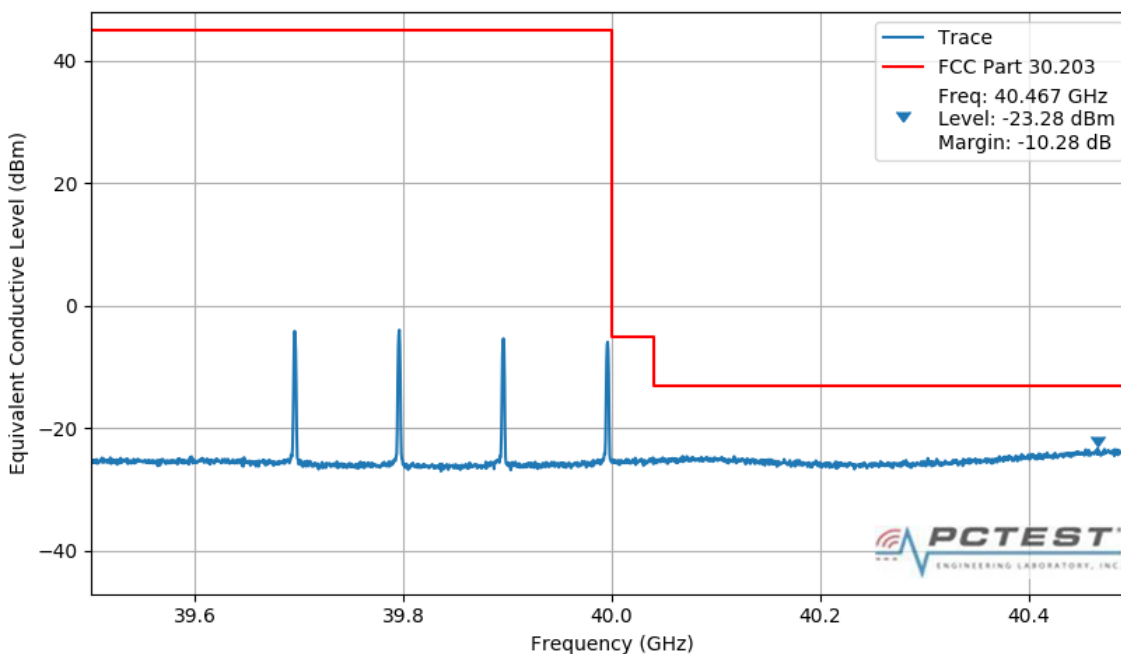
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-472. Band Edge Plot (4CC 100M 16QAM Hi Channel- 1 RB 65 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 274 of 304

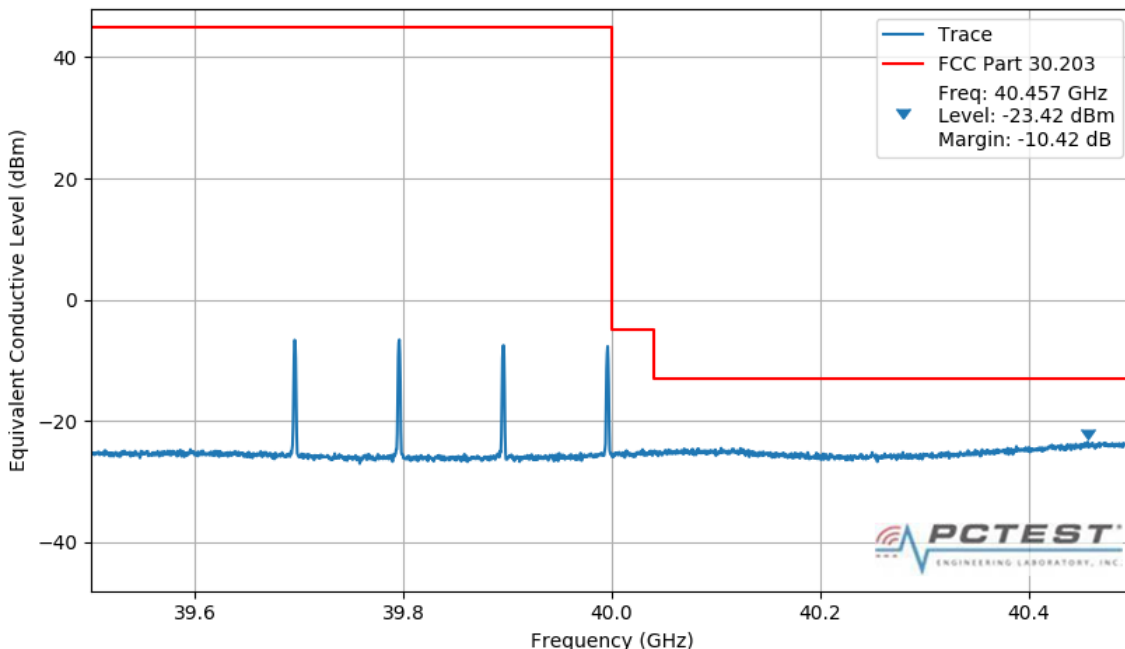
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-473. Band Edge Plot (4CC 100M 64QAM Hi Channel – 1 RB 0 offset)

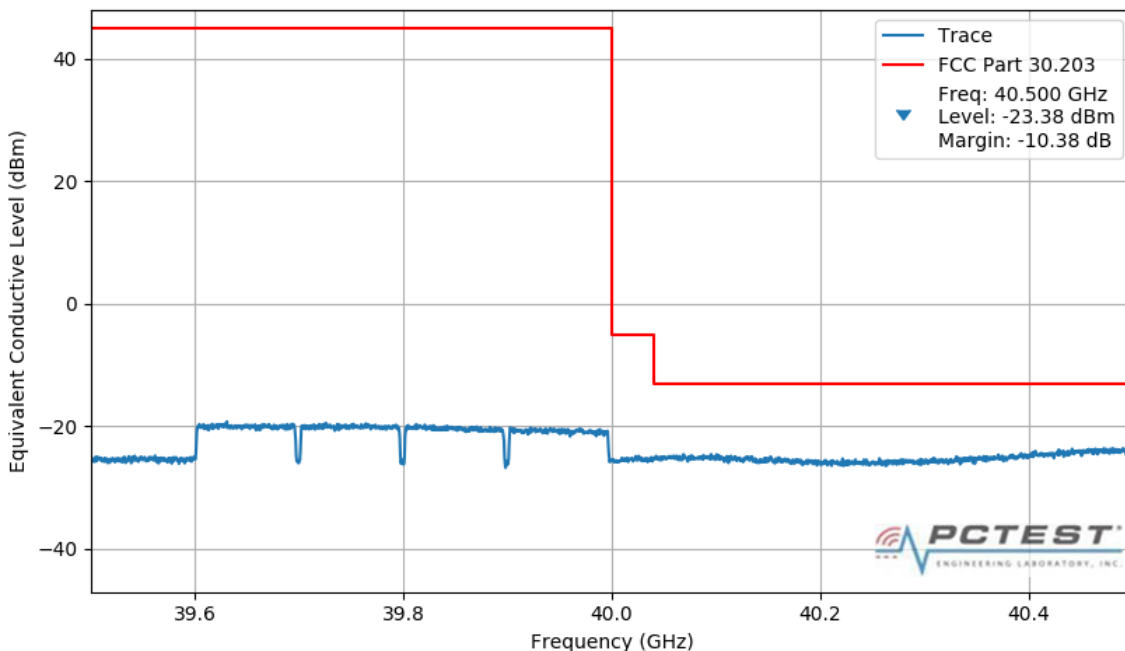
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-474. Band Edge Plot (4CC 100M QPSK Hi Channel– 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 275 of 304

QTM 0 - V

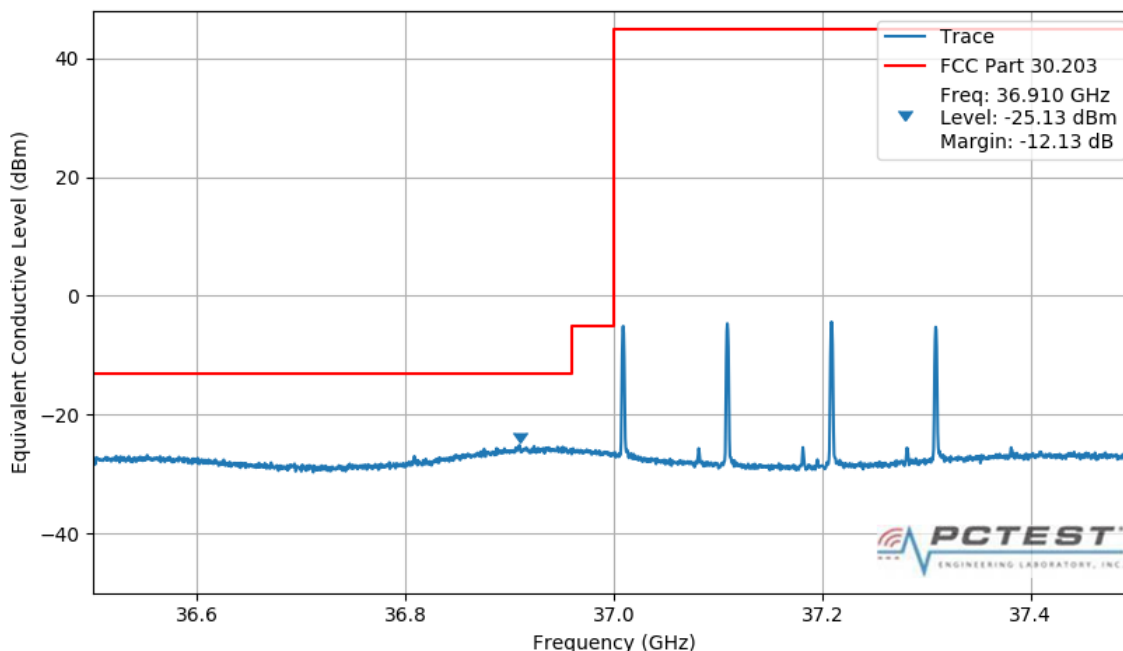
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-475. Band Edge Plot (4CC 100M QPSK Low Channel – 1 RB 0 offset)

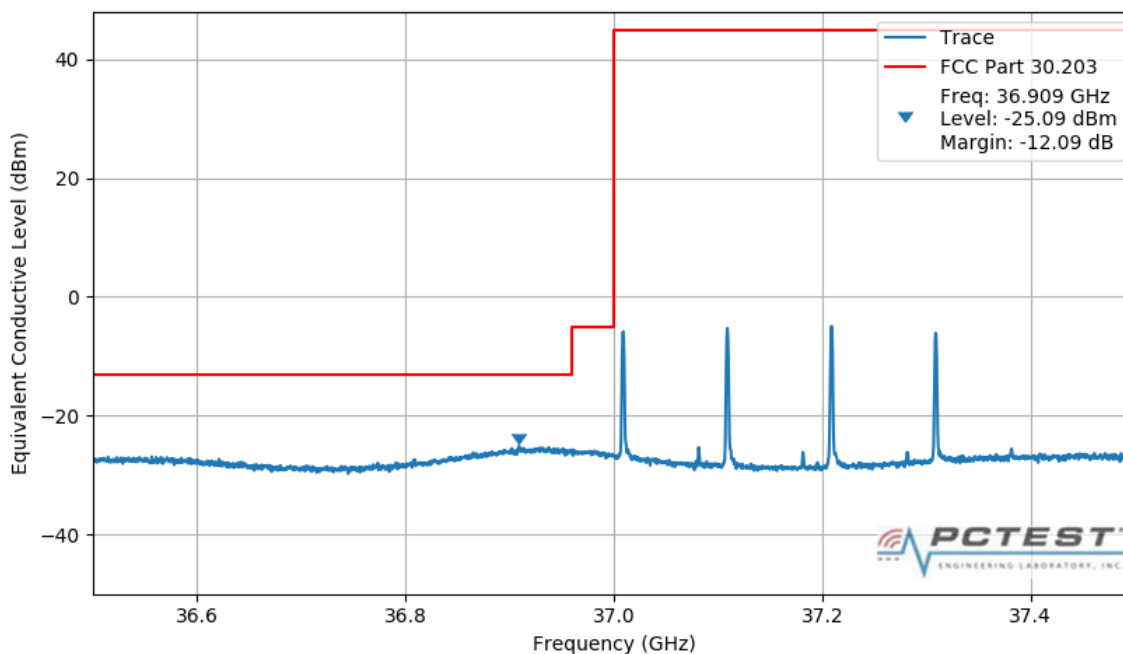
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-476. Band Edge Plot (4CC 100M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 276 of 304

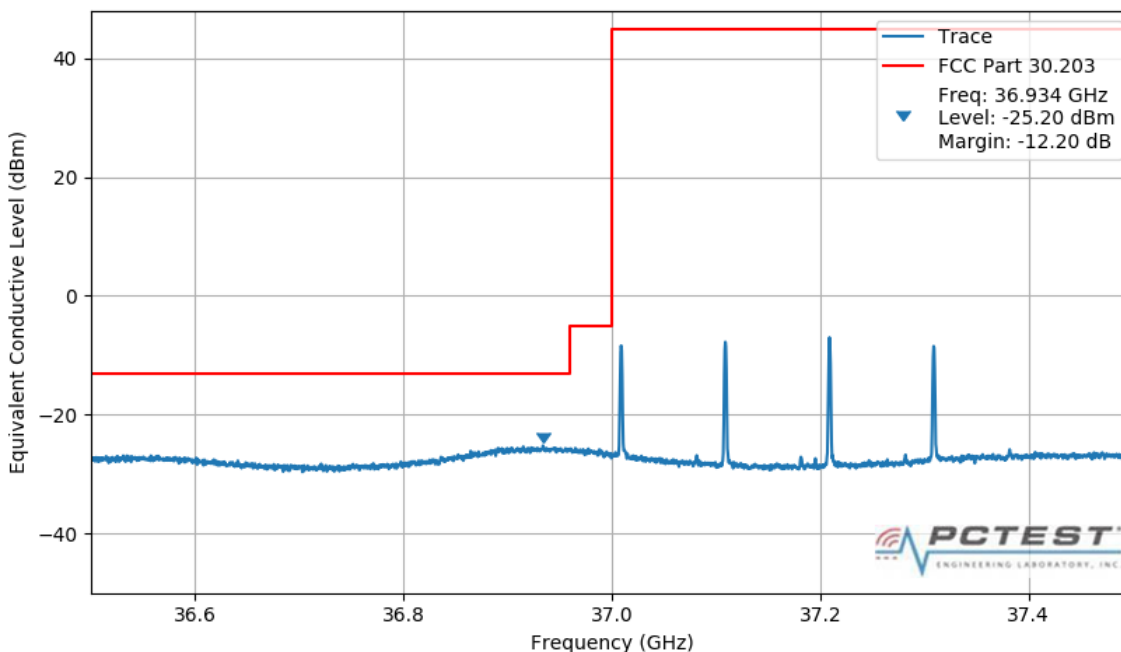
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-477. Band Edge Plot (4CC 100M 64QAM Low Channel – 1 RB 0 offset)

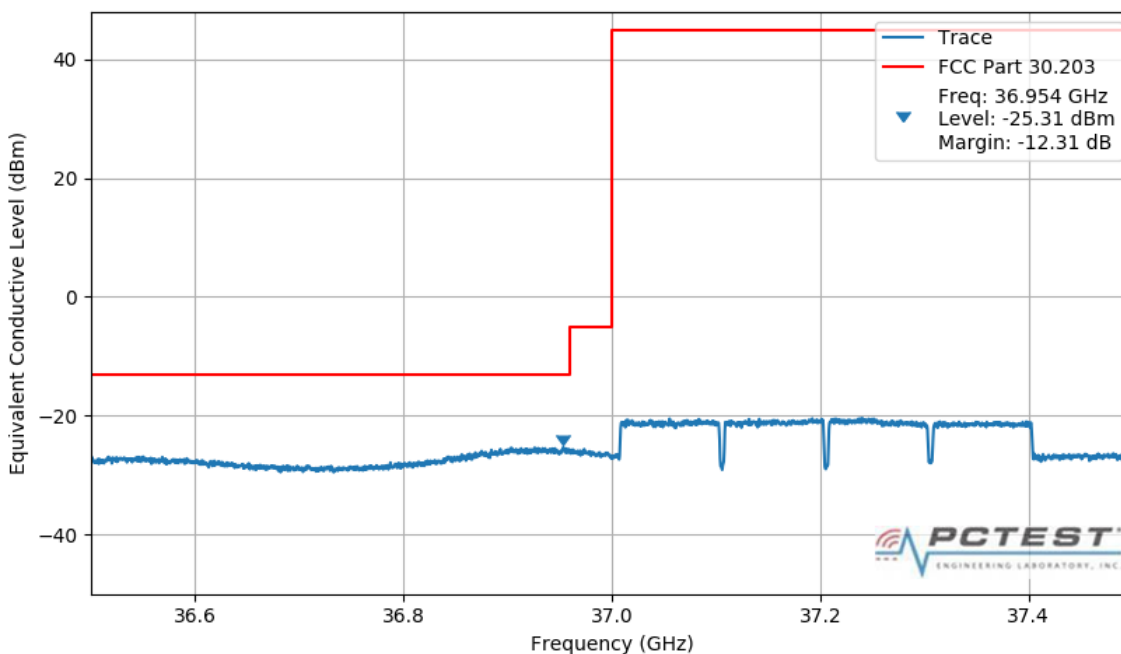
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-478. Band Edge Plot (4CC 100M QPSK Low Channel – 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 277 of 304

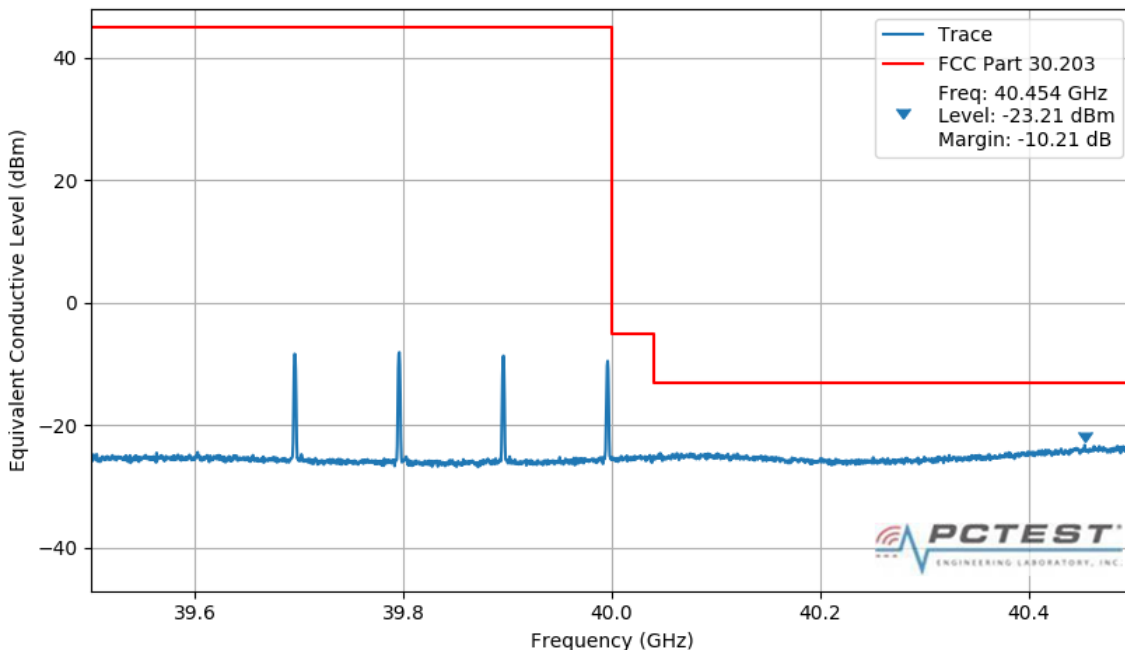
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-479. Band Edge Plot (4CC 100M QPSK Hi Channel- 1 RB 65 offset)

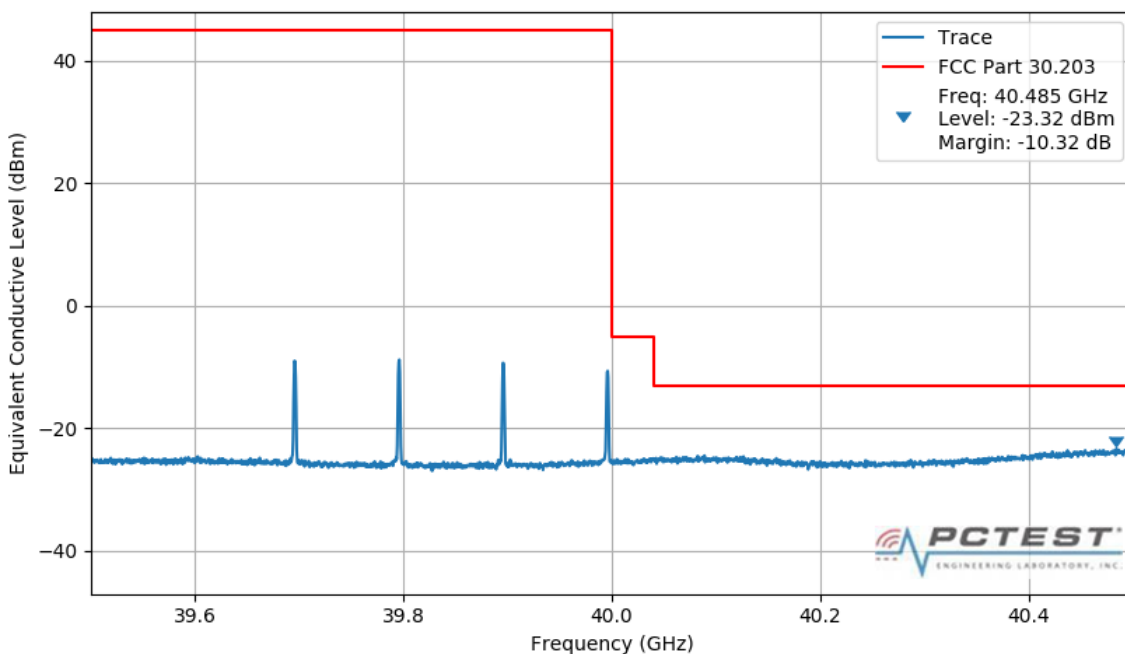
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-480. Band Edge Plot (4CC 100M 16QAM Hi Channel- 1 RB 65 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 278 of 304

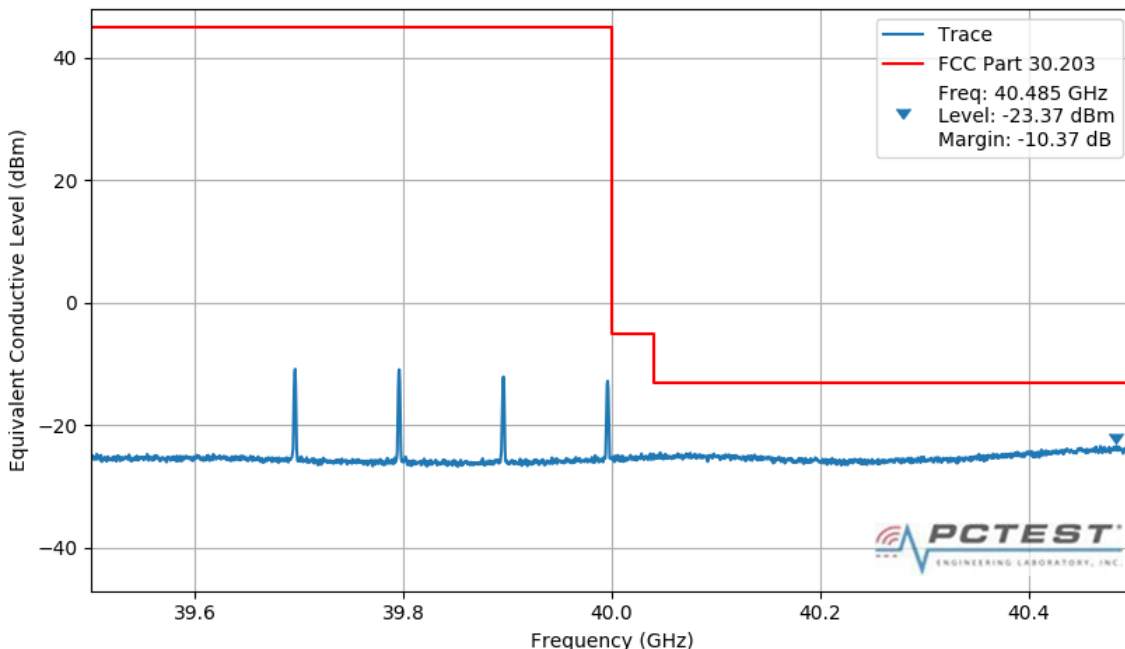
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-481. Band Edge Plot (4CC 100M 64QAM Hi Channel – 1 RB 65 offset)

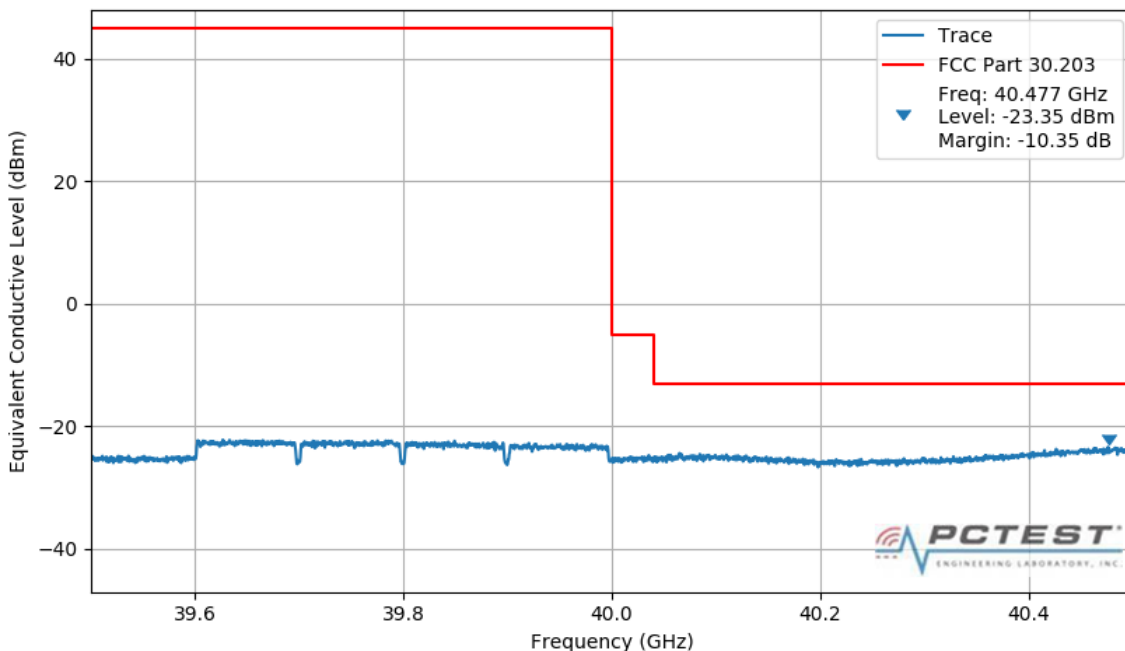
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



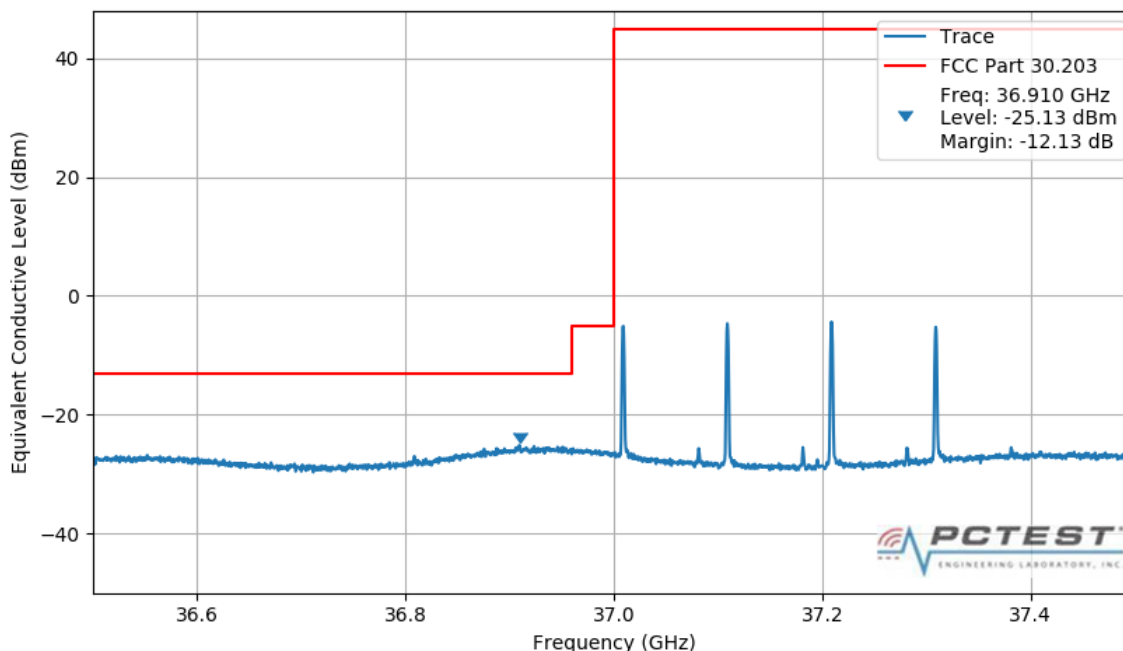
Plot 7-482. Band Edge Plot (4CC 100M QPSK Hi Channel– 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 279 of 304

QTM 0 - H + V

PASS

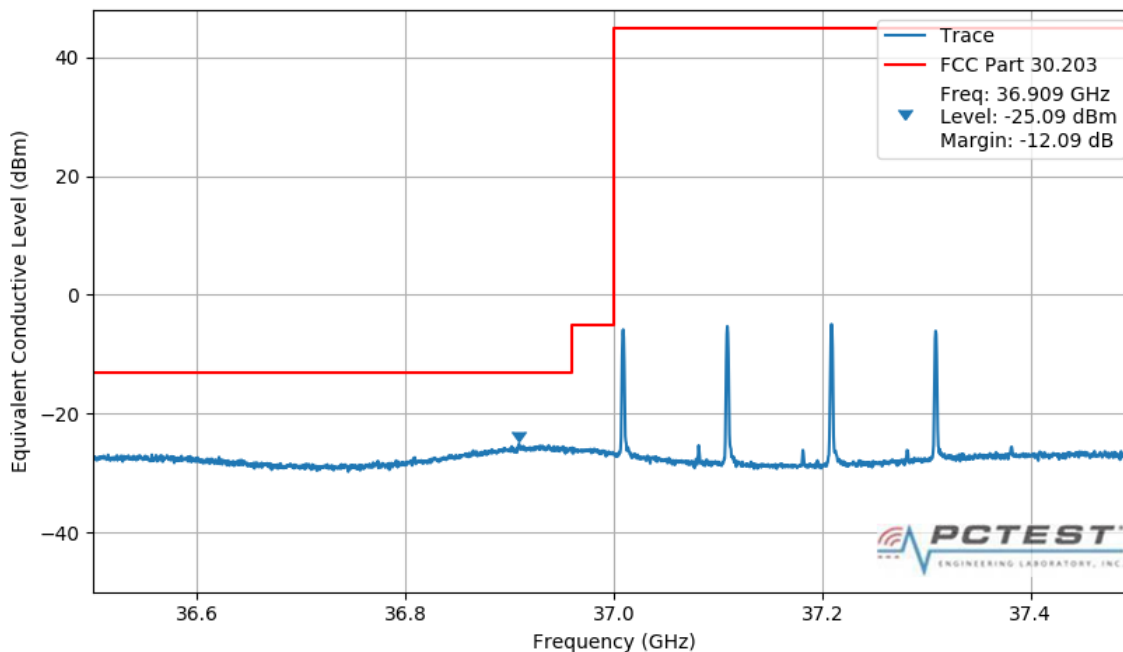
Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 2001
Span: 1000 MHz Detector: RMS VBW: 3 MHz
Ref Level: 47.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-483. Band Edge Plot (4CC 100M QPSK Low Channel – 1 RB 0 offset)

PASS

Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 2001
Span: 1000 MHz Detector: RMS VBW: 3 MHz
Ref Level: 47.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-484. Band Edge Plot (4CC 100M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 280 of 304

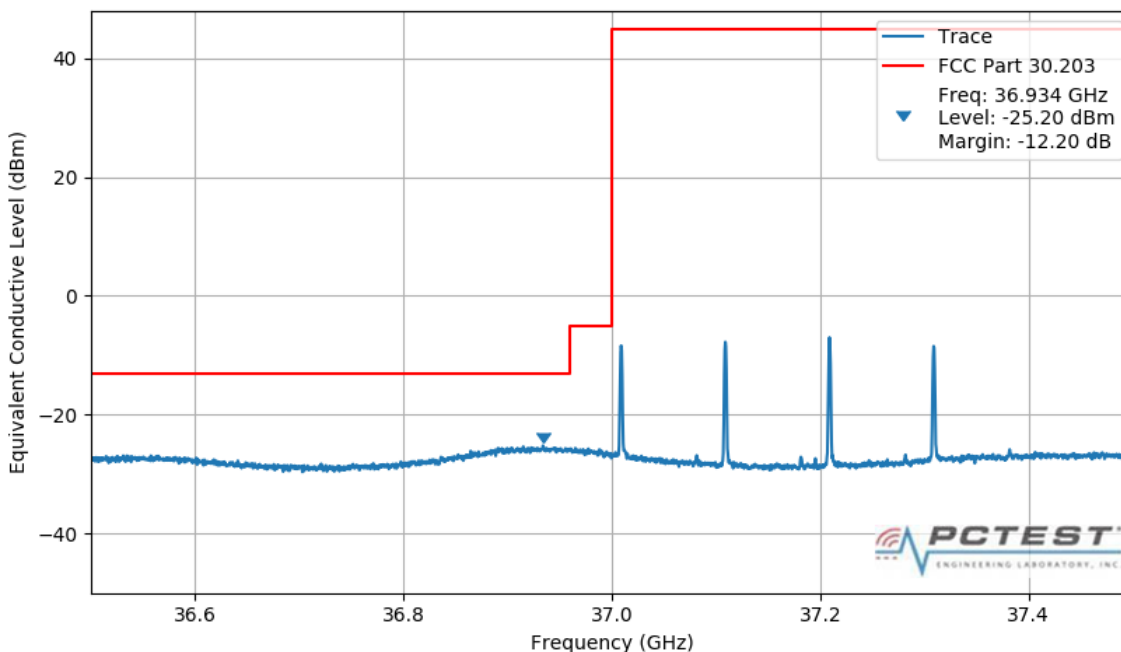
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-485. Band Edge Plot (4CC 100M 64QAM Low Channel – 1 RB 0 offset)

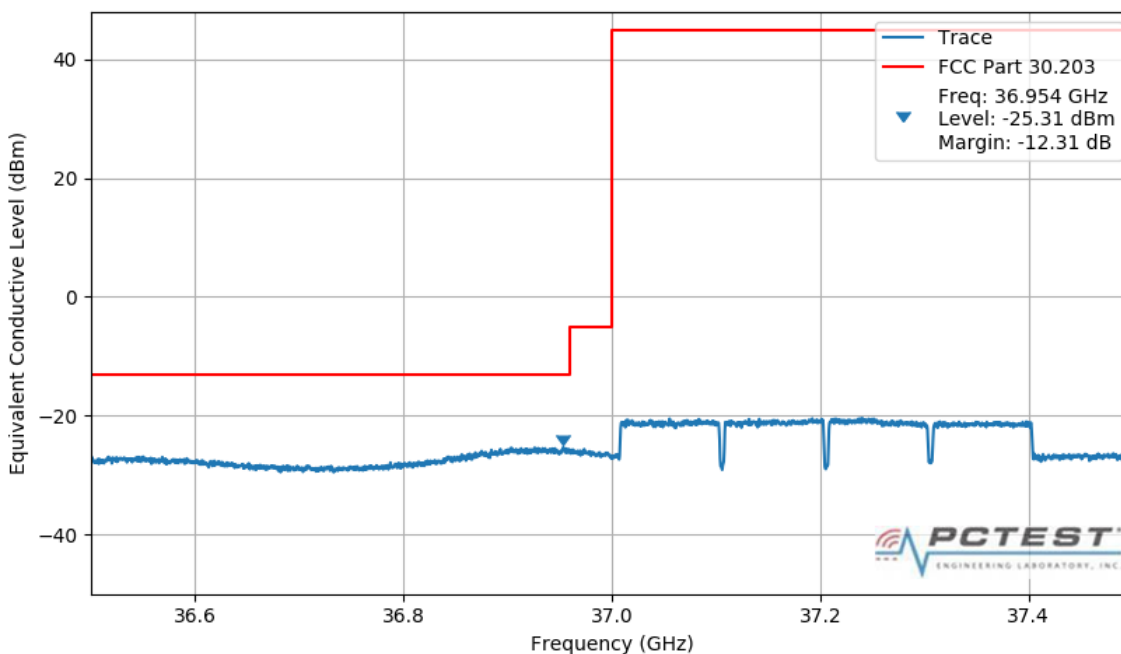
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-486. Band Edge Plot (4CC 100M QPSK Low Channel – 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 281 of 304

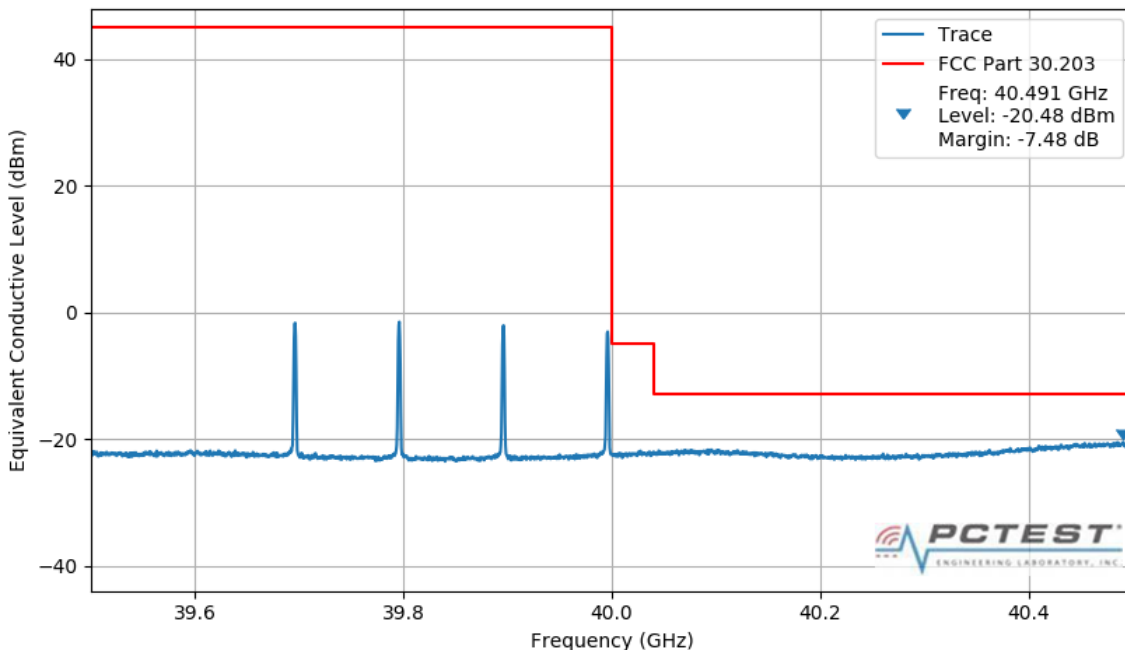
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-487. Band Edge Plot (4CC 100M QPSK Hi Channel- 1 RB 65 offset)

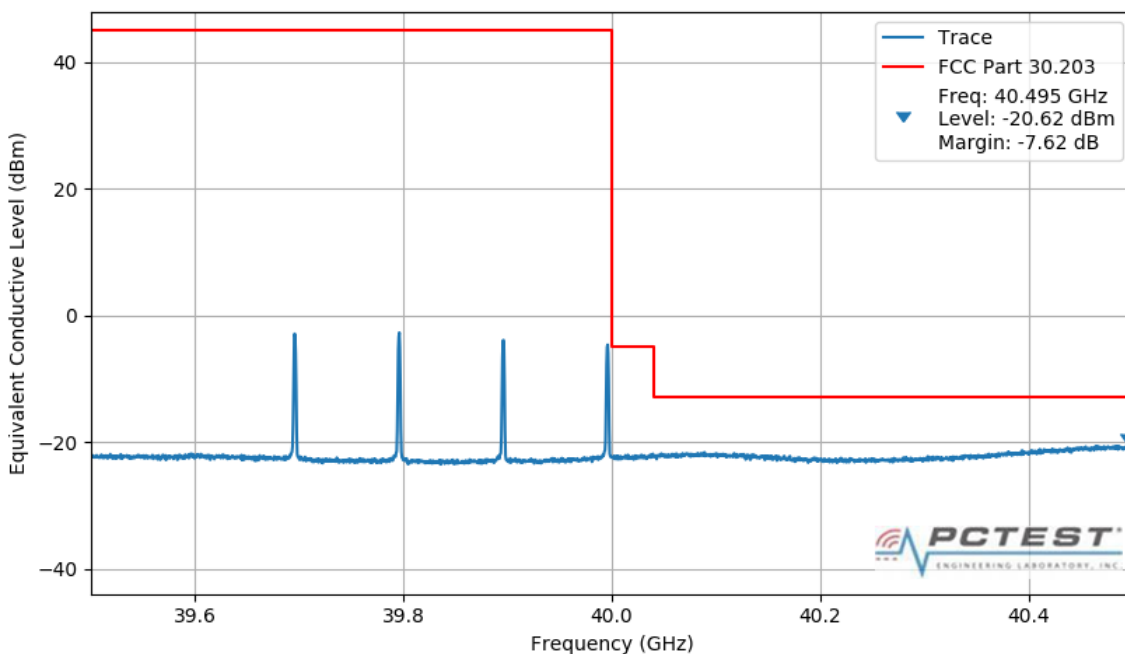
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-488. Band Edge Plot (4CC 100M 16QAM Hi Channel- 1 RB 65 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 282 of 304

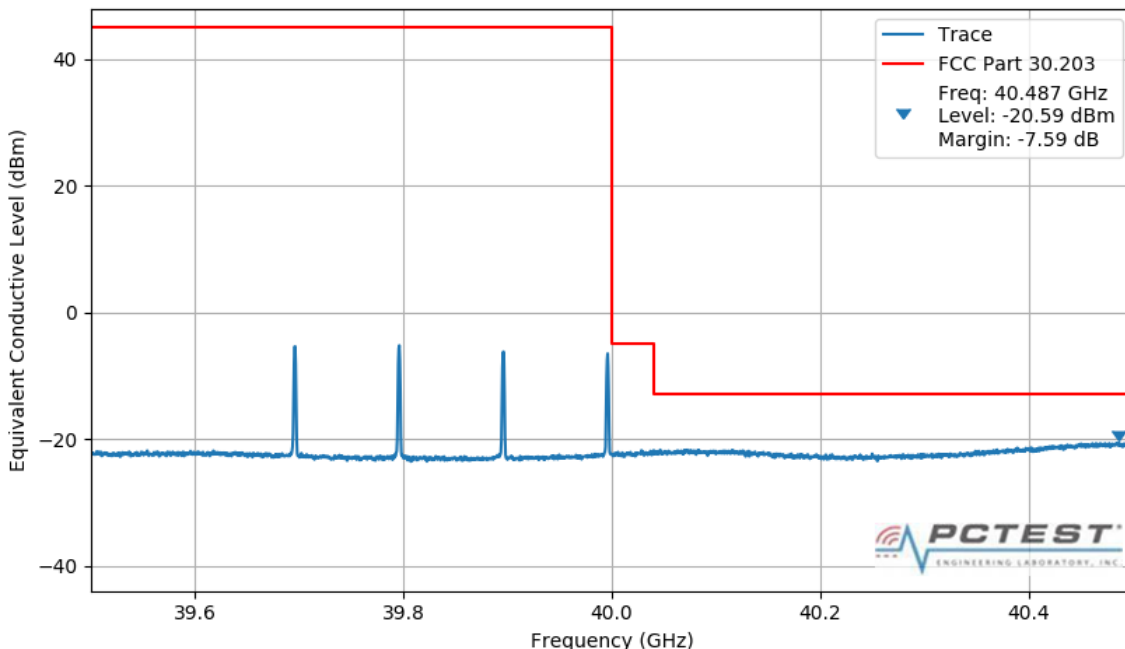
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-489. Band Edge Plot (4CC 100M 64QAM Hi Channel – 1 RB 65 offset)

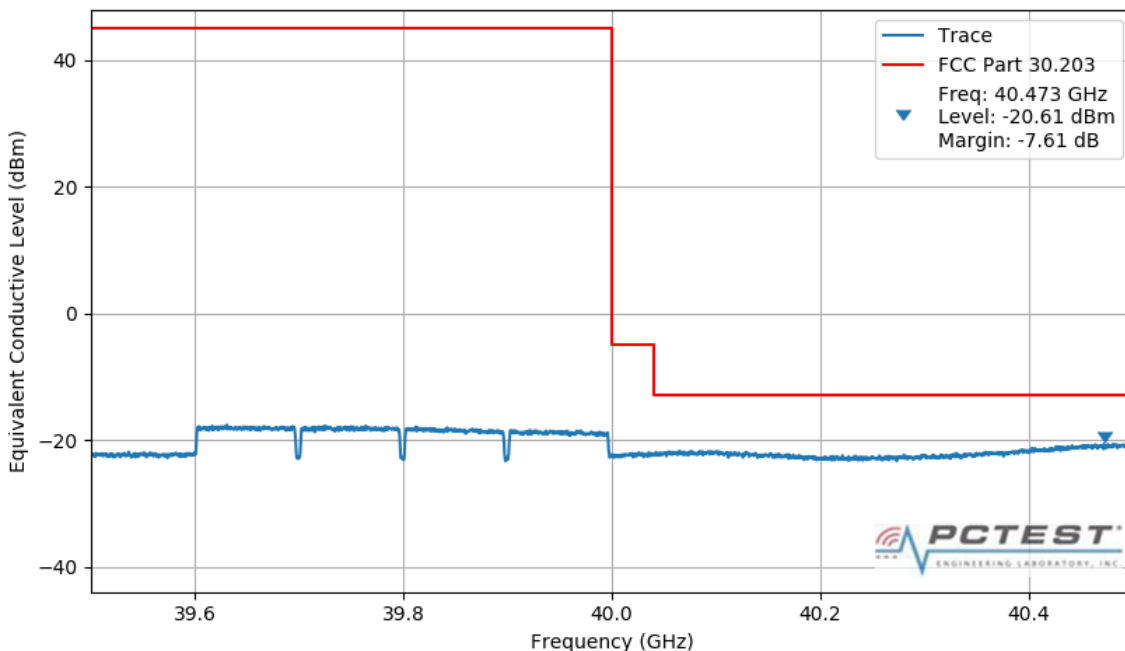
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



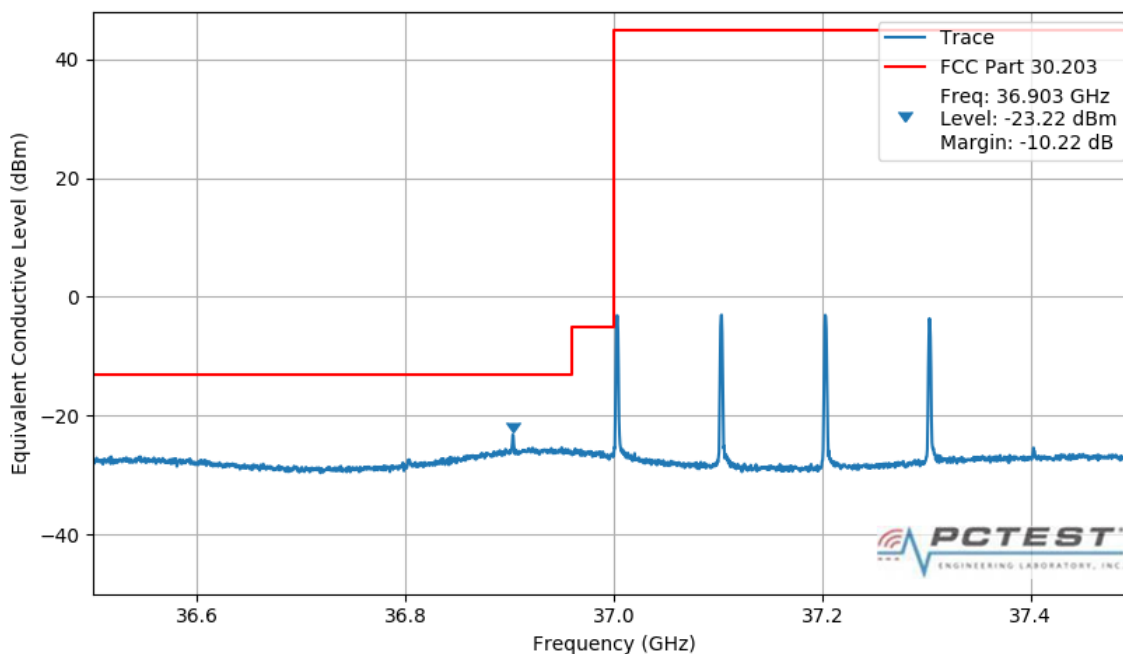
Plot 7-490. Band Edge Plot (4CC 100M QPSK Hi Channel– 66 RB 0 offset)

FCC ID: ZNFV450VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 283 of 304

QTM 1 - H

PASS

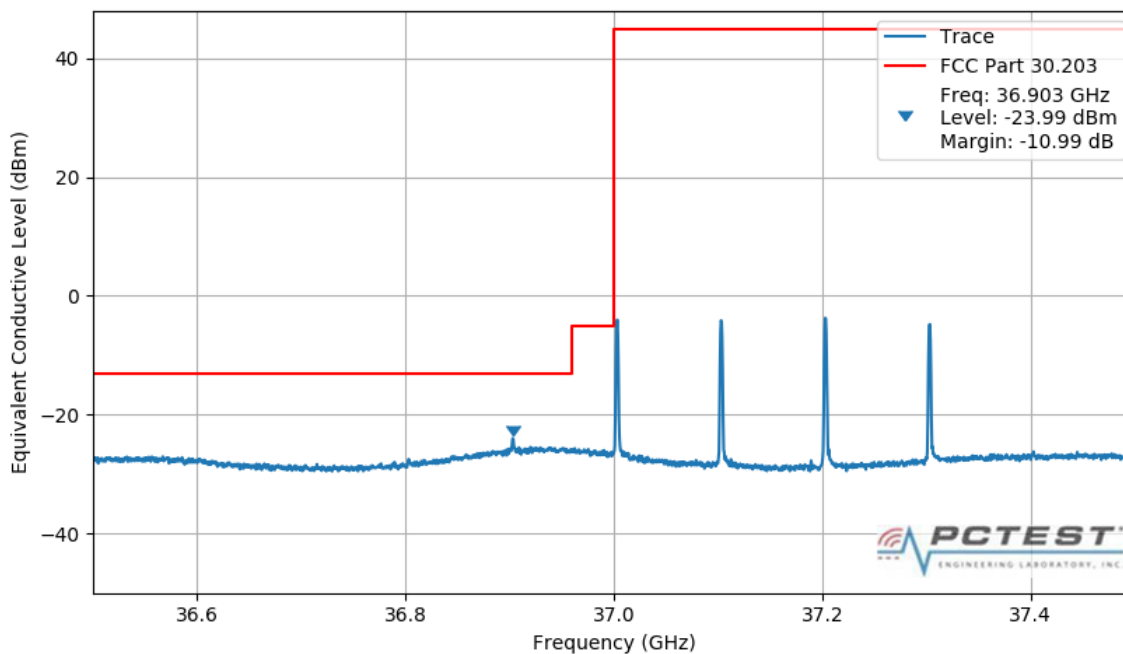
Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 2001
Span: 1000 MHz Detector: RMS VBW: 3 MHz
Ref Level: 17.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-491. Band Edge Plot (4CC 100M QPSK Low Channel – 1 RB 0 offset)

PASS

Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 2001
Span: 1000 MHz Detector: RMS VBW: 3 MHz
Ref Level: 17.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-492. Band Edge Plot (4CC 100M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 284 of 304

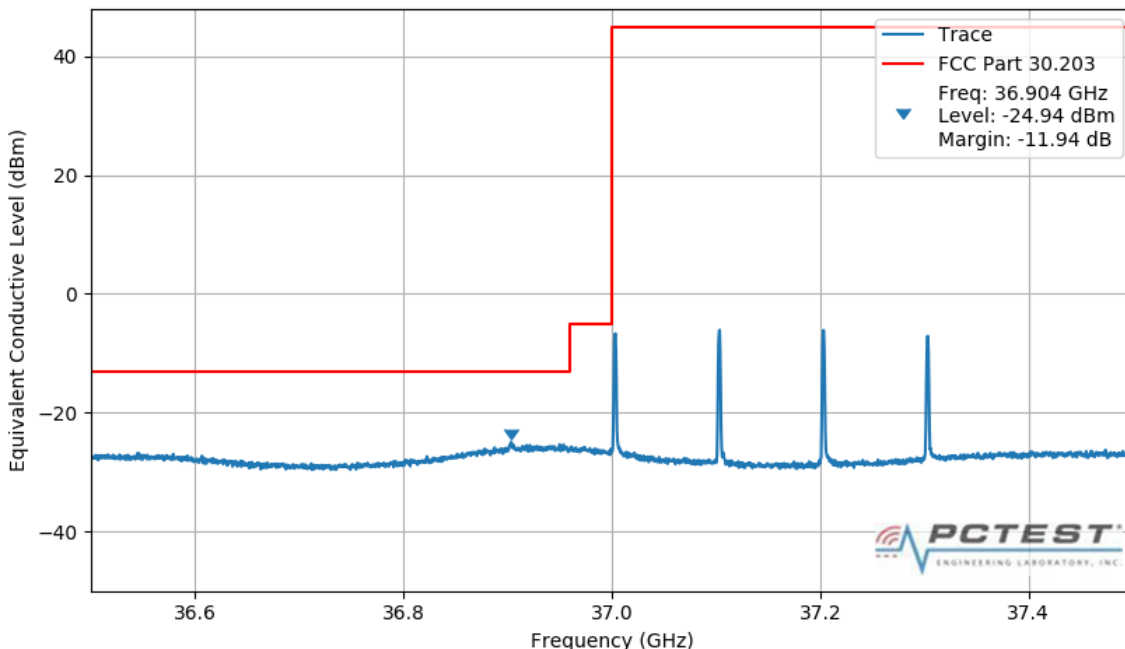
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 17.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-493. Band Edge Plot (4CC 100M 64QAM Low Channel – 1 RB 0 offset)

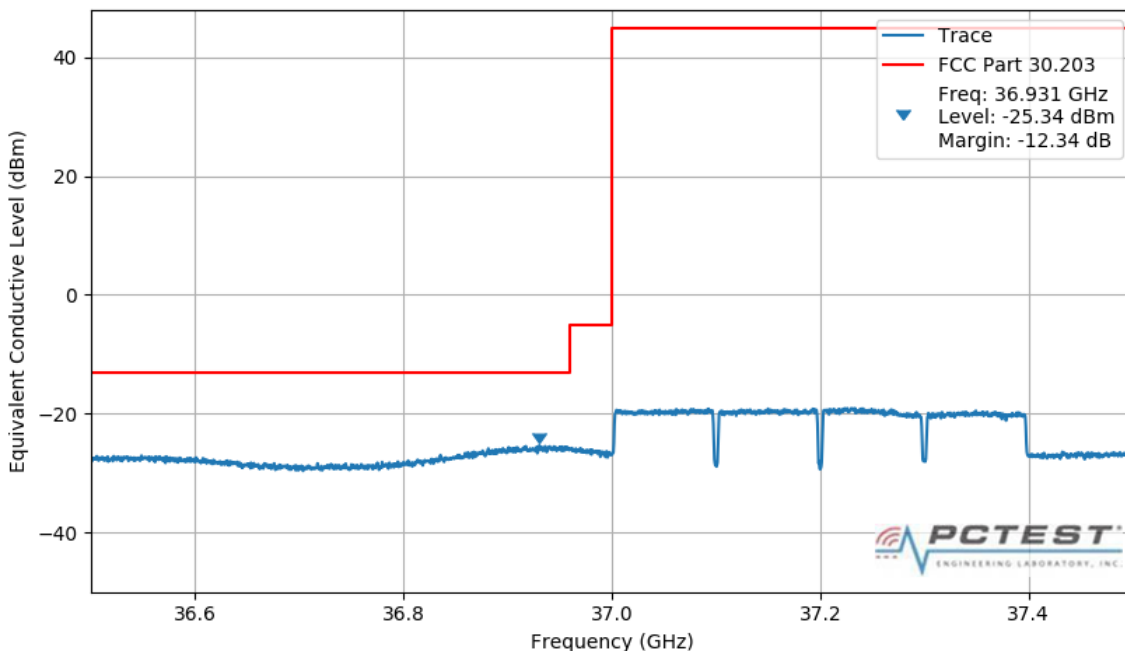
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 17.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-494. Band Edge Plot (4CC 100M QPSK Low Channel – 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 285 of 304

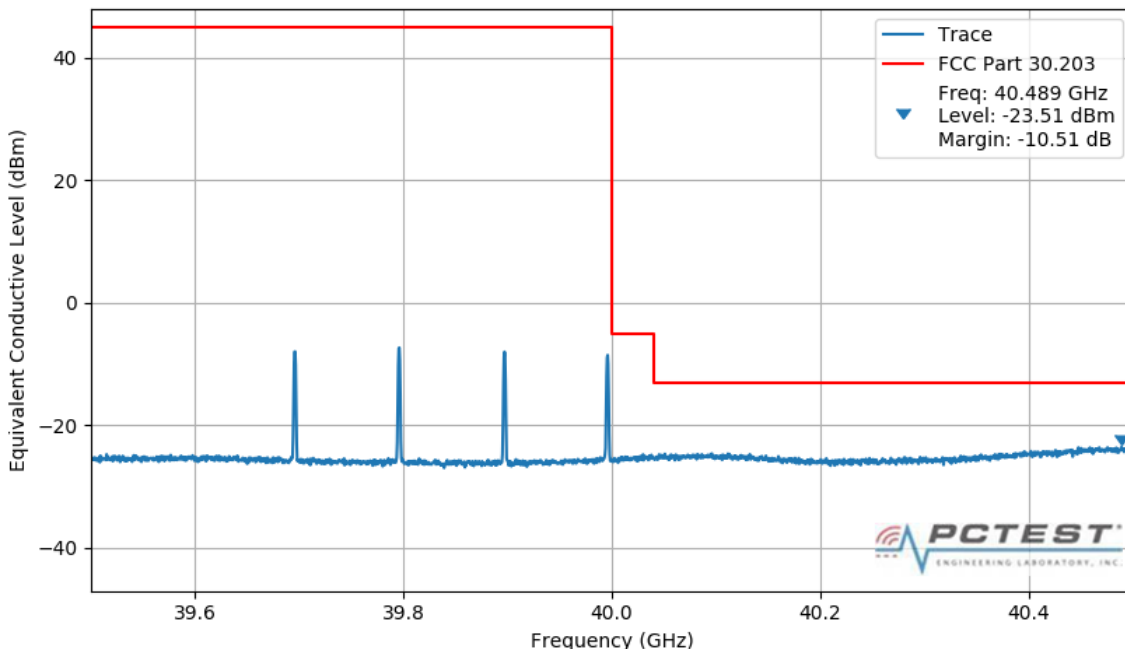
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 18.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-495. Band Edge Plot (4CC 100M QPSK Hi Channel- 1 RB 65 offset)

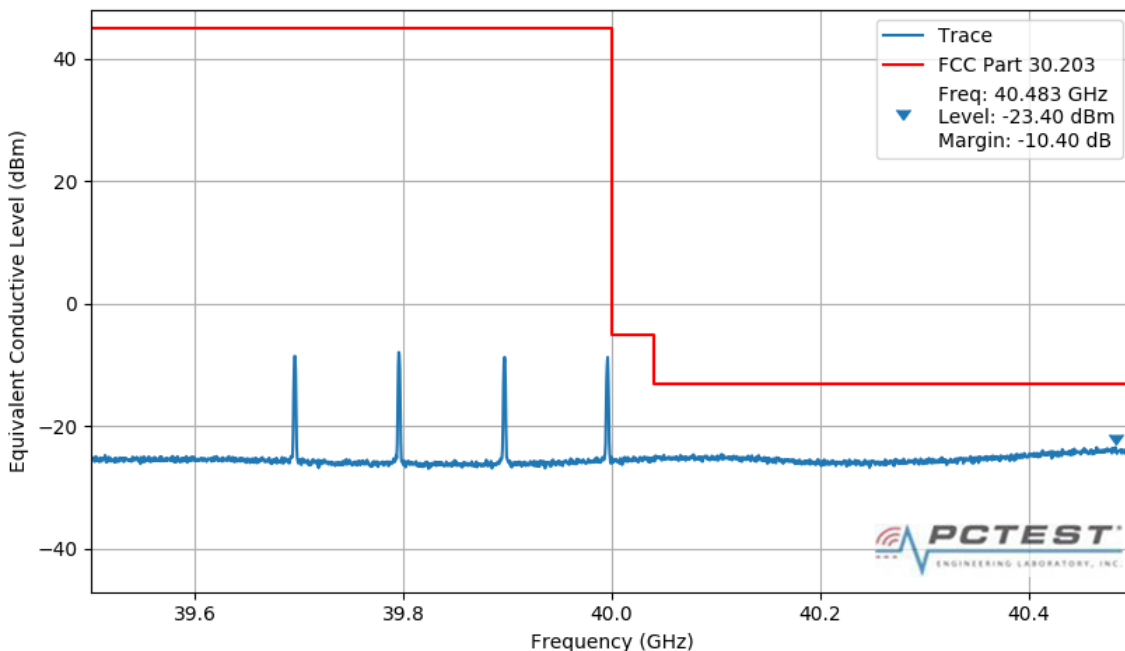
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 18.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-496. Band Edge Plot (4CC 100M 16QAM Hi Channel- 1 RB 65 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 286 of 304

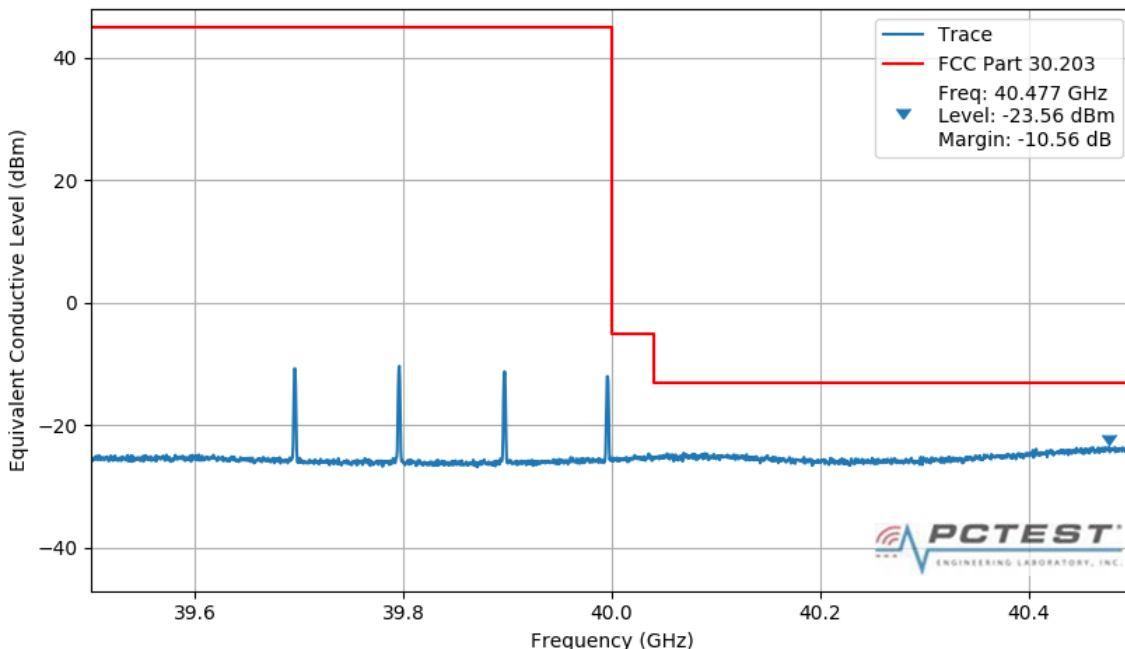
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 18.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-497. Band Edge Plot (4CC 100M 64QAM Hi Channel – 1 RB 65 offset)

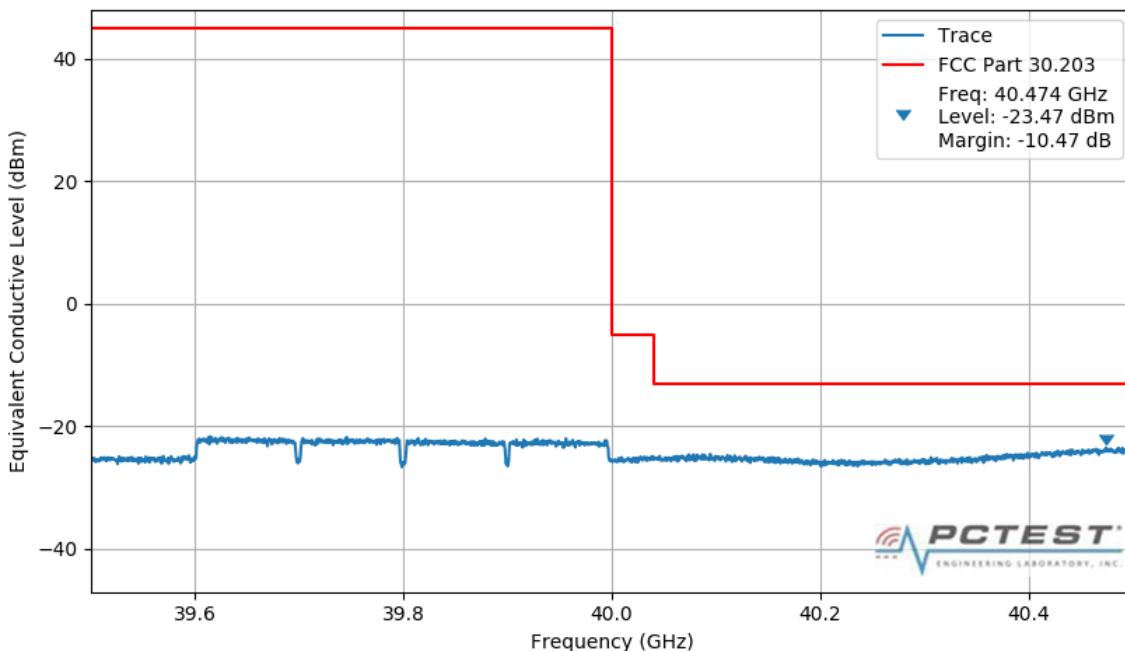
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 18.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



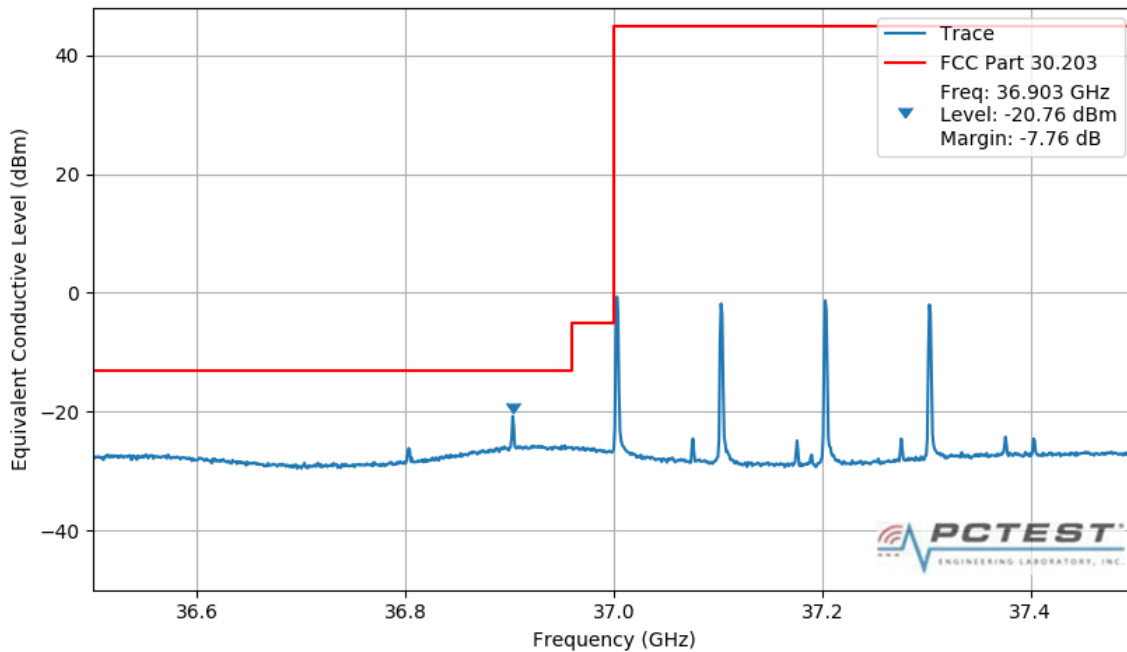
Plot 7-498. Band Edge Plot (4CC 100M QPSK Hi Channel– 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 287 of 304

QTM 1 - V

PASS

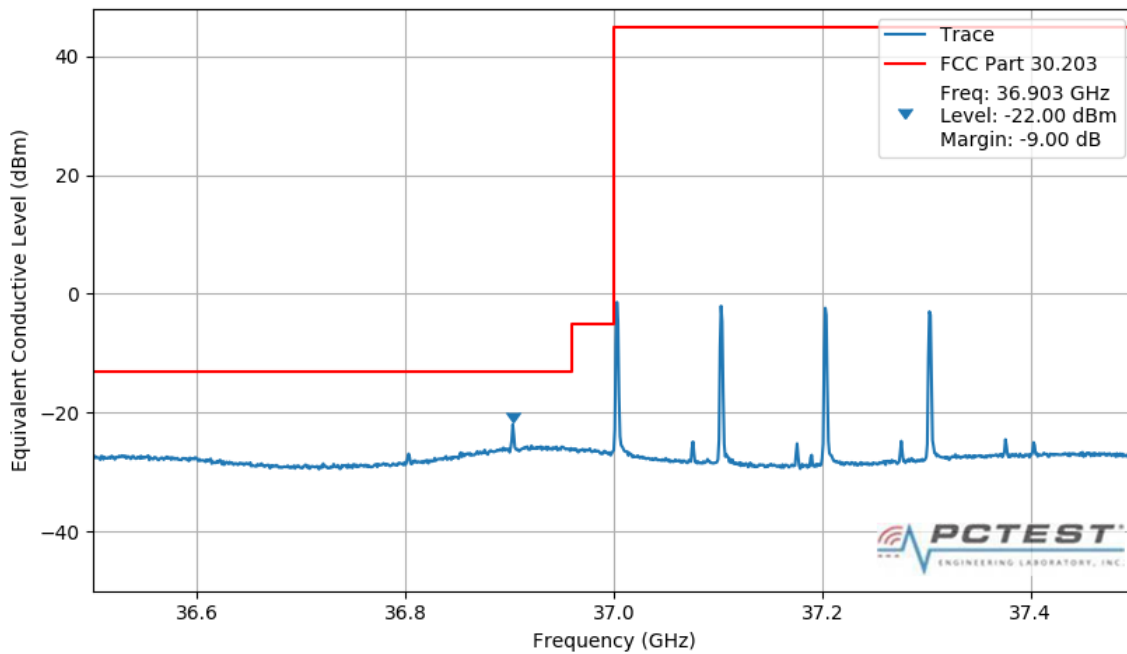
Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 1001
Span: 1000 MHz Detector: RMS VBW: 3 MHz
Ref Level: 47.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-499. Band Edge Plot (4CC 100M QPSK Low Channel – 1 RB 0 offset)

PASS

Center Freq: 37.00 GHz Trace: AVERAGE RBW: 1 MHz SWP points: 1001
Span: 1000 MHz Detector: RMS VBW: 3 MHz
Ref Level: 47.68 dBm Offset: 47.68 dB SWP Count: 100



Plot 7-500. Band Edge Plot (4CC 100M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 288 of 304

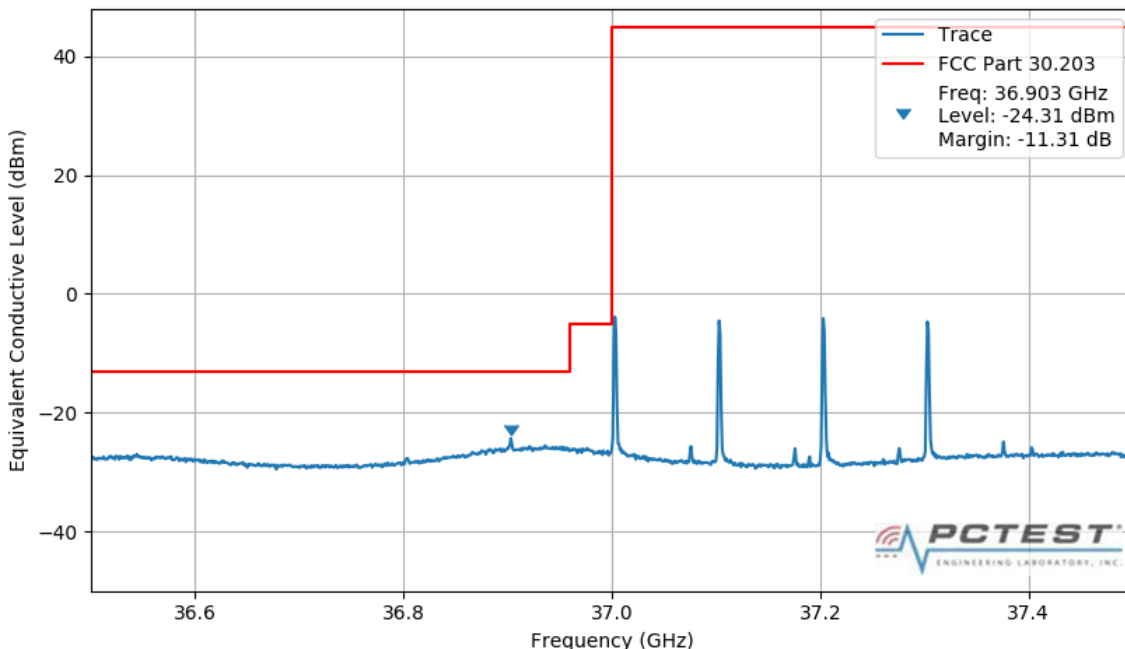
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-501. Band Edge Plot (4CC 100M 64QAM Low Channel – 1 RB 0 offset)

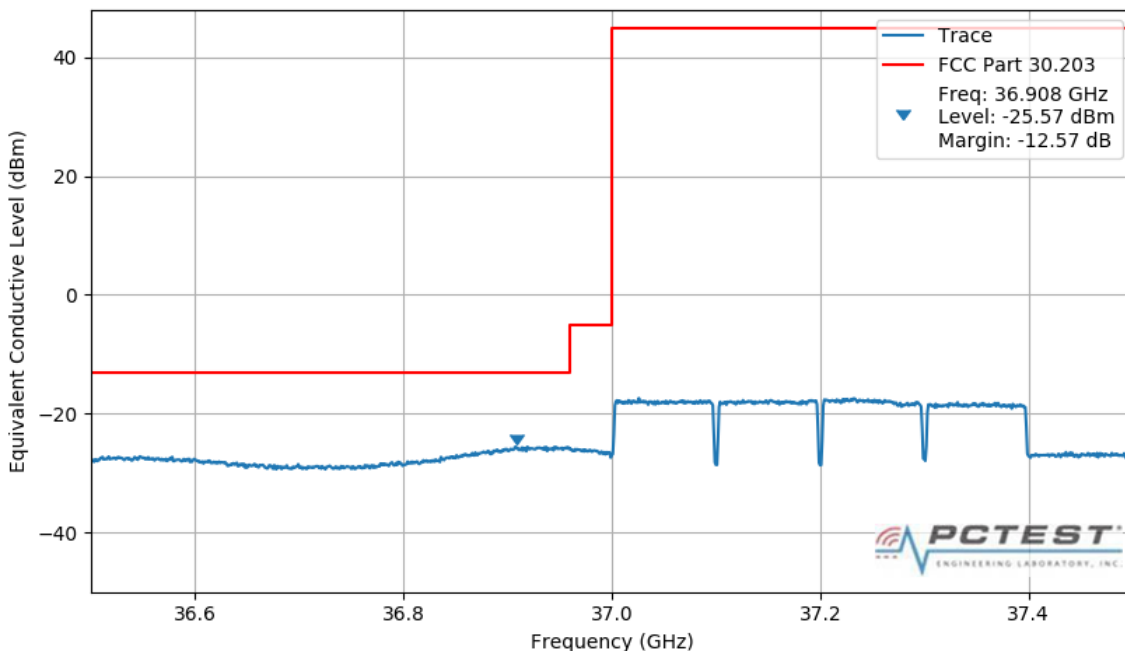
PASS

Center Freq: 37.00 GHz
Span: 1000 MHz
Ref Level: 47.68 dBm

Trace: AVERAGE
Detector: RMS
Offset: 47.68 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 1001



Plot 7-502. Band Edge Plot (4CC 100M QPSK Low Channel – 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 289 of 304

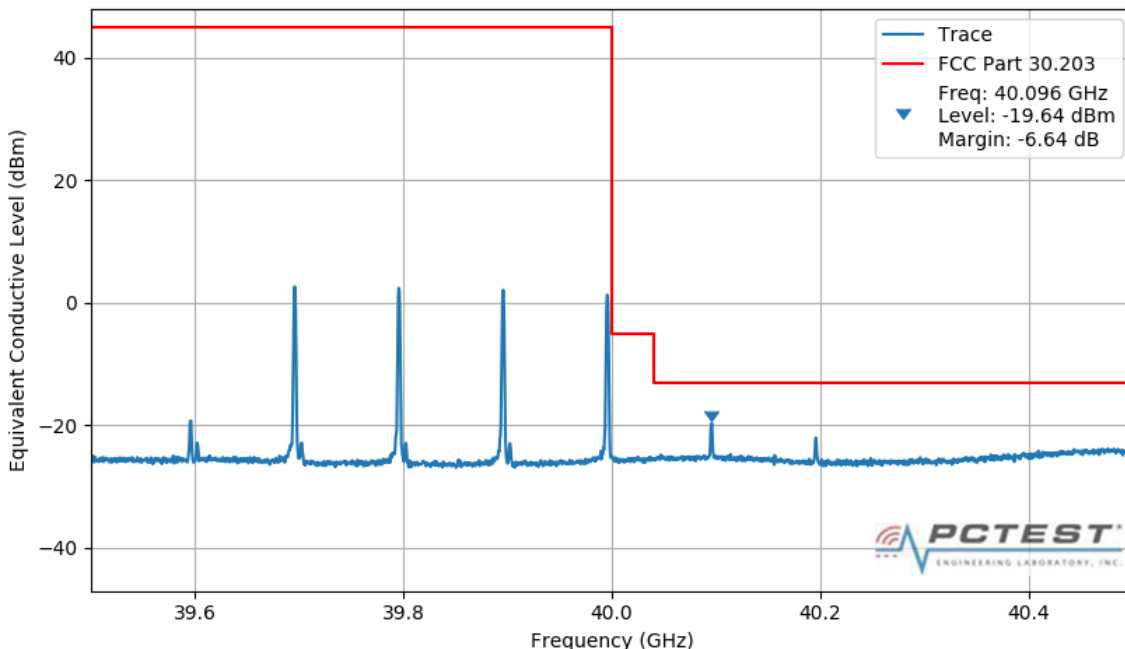
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-503. Band Edge Plot (4CC 100M QPSK Hi Channel- 1 RB 65 offset)

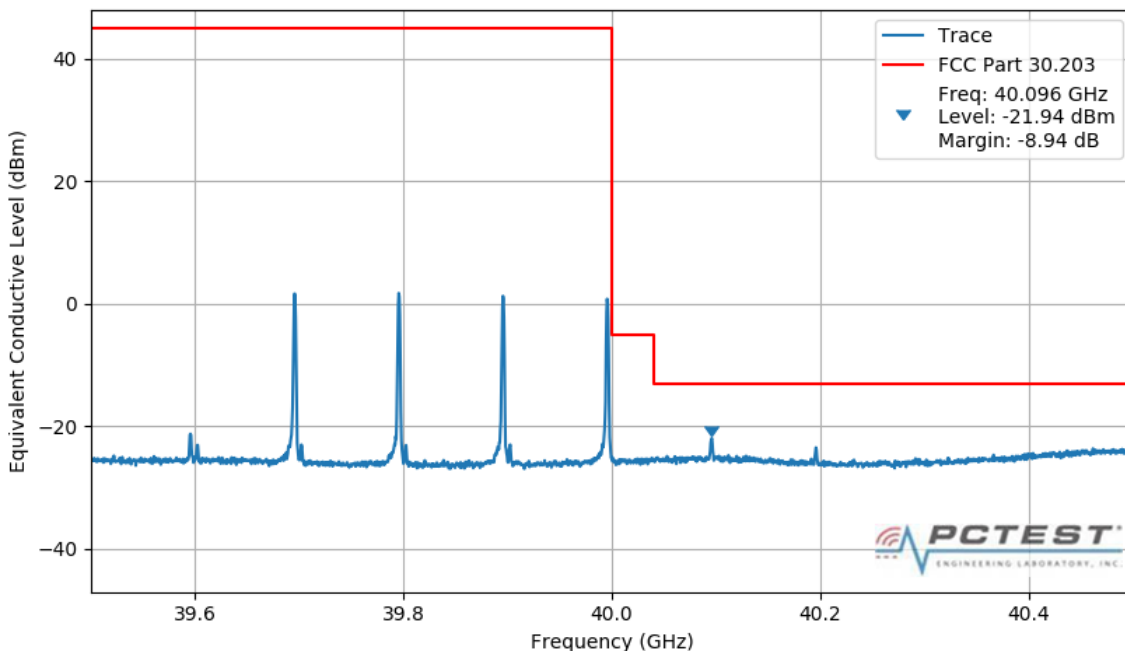
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-504. Band Edge Plot (4CC 100M 16QAM Hi Channel- 1 RB 65 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 290 of 304

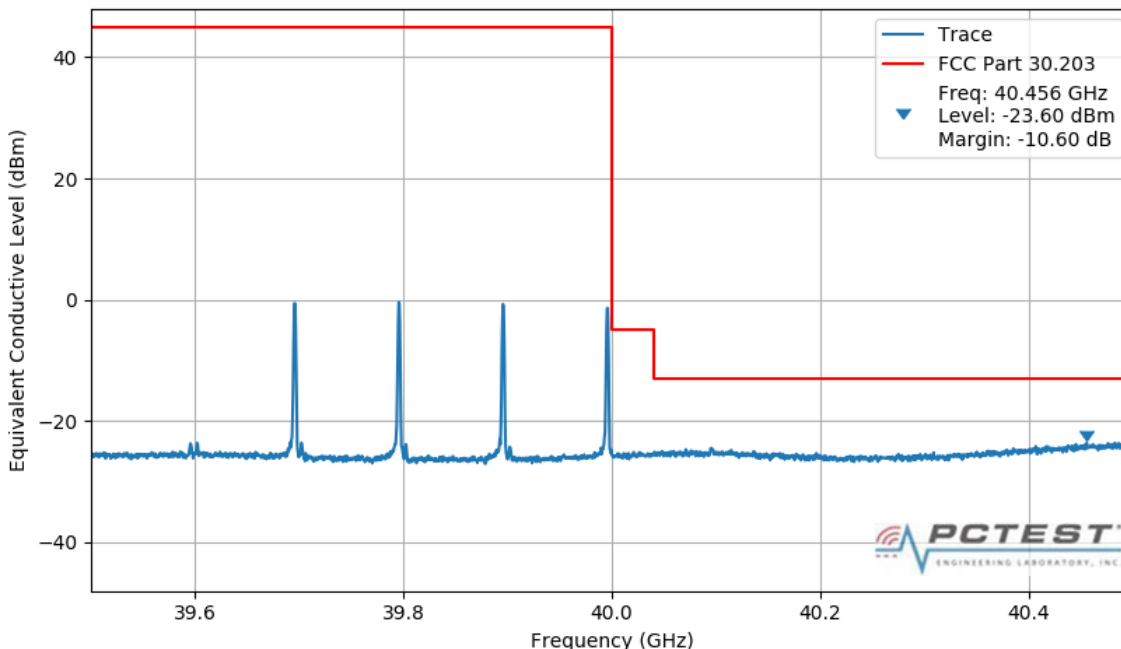
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-505. Band Edge Plot (4CC 100M 64QAM Hi Channel – 1 RB 65 offset)

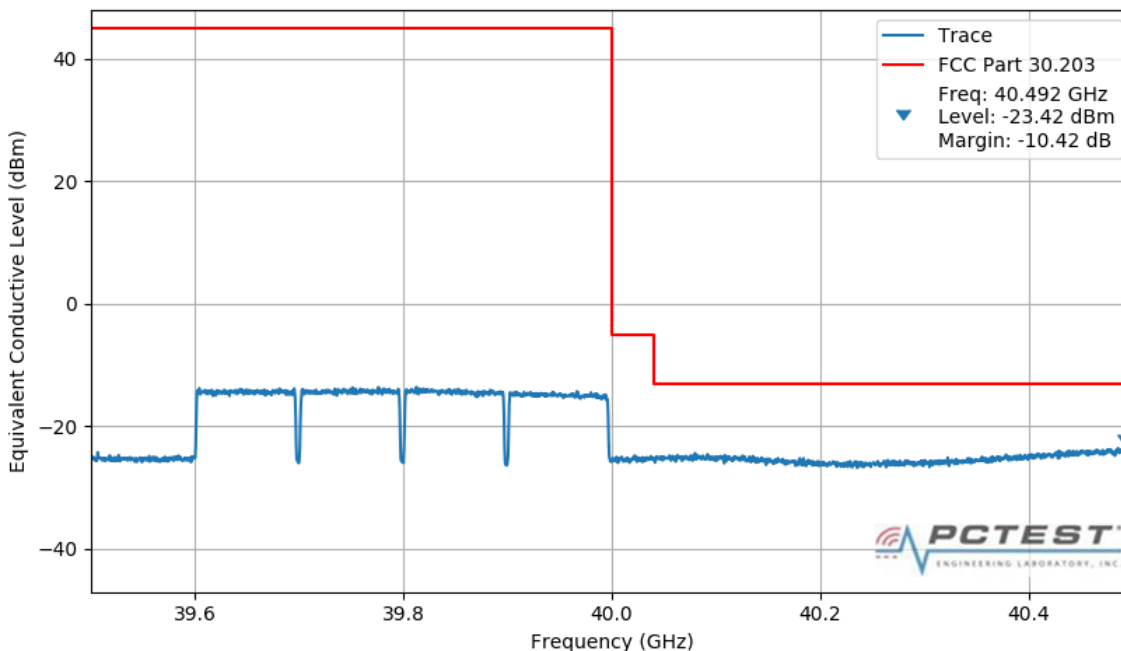
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

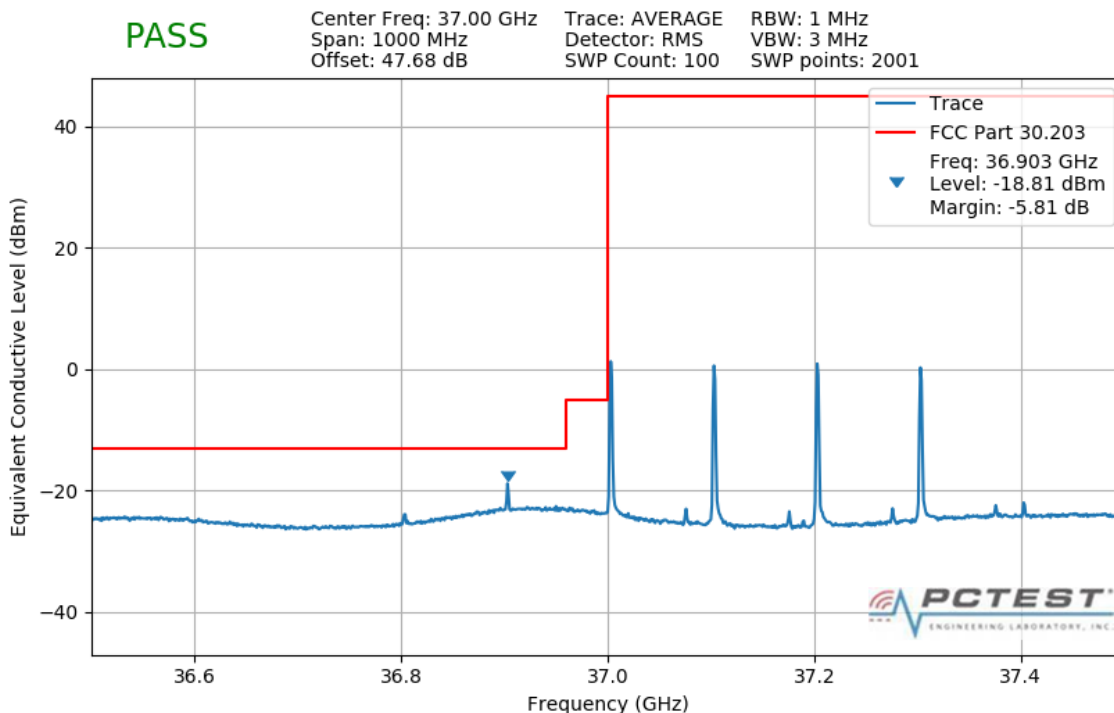
SWP points: 2001



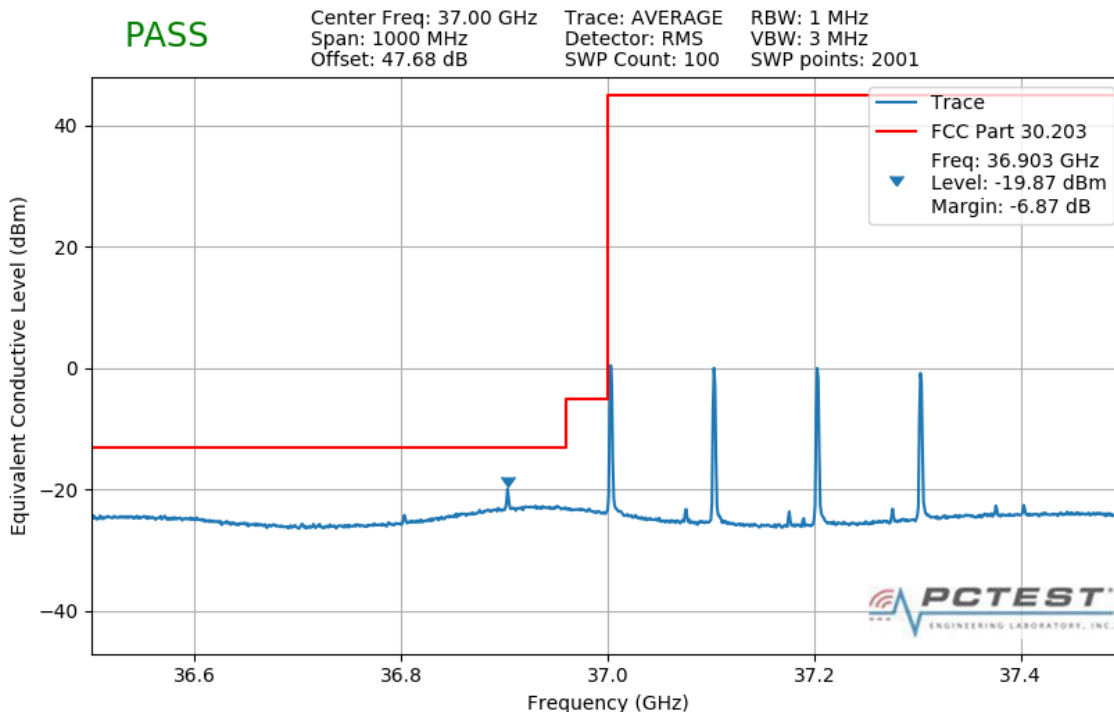
Plot 7-506. Band Edge Plot (4CC 100M QPSK Hi Channel– 66 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 291 of 304

QTM 1 - H + V

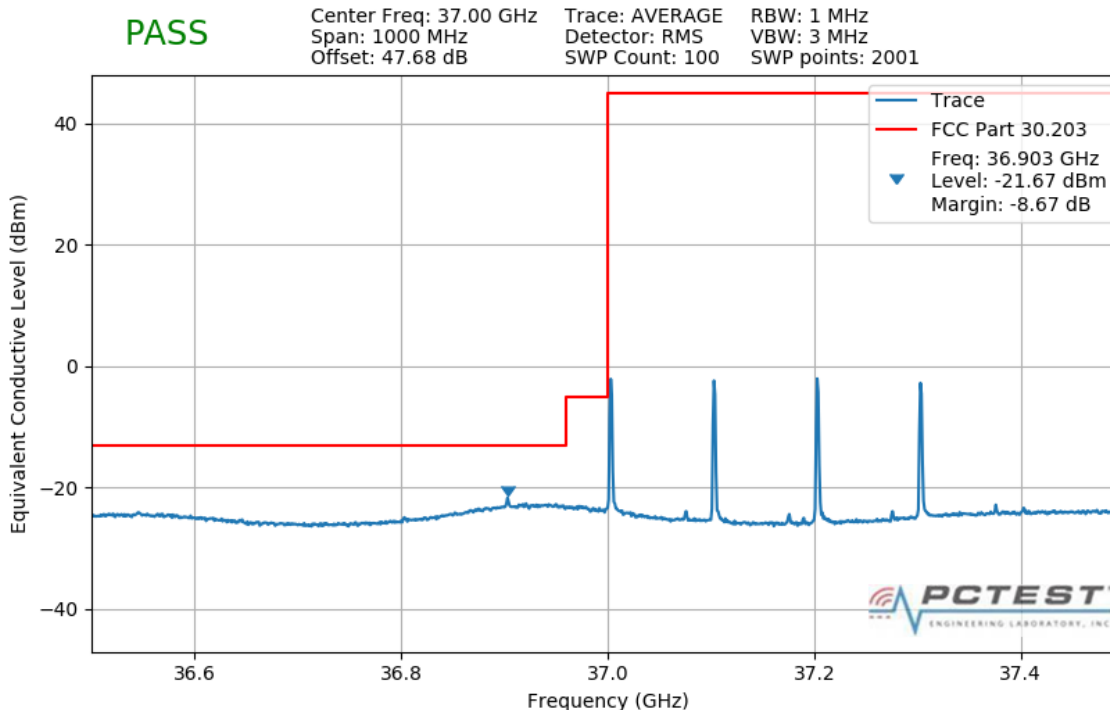


Plot 7-507. Band Edge Plot (4CC 100M QPSK Low Channel – 1 RB 0 offset)

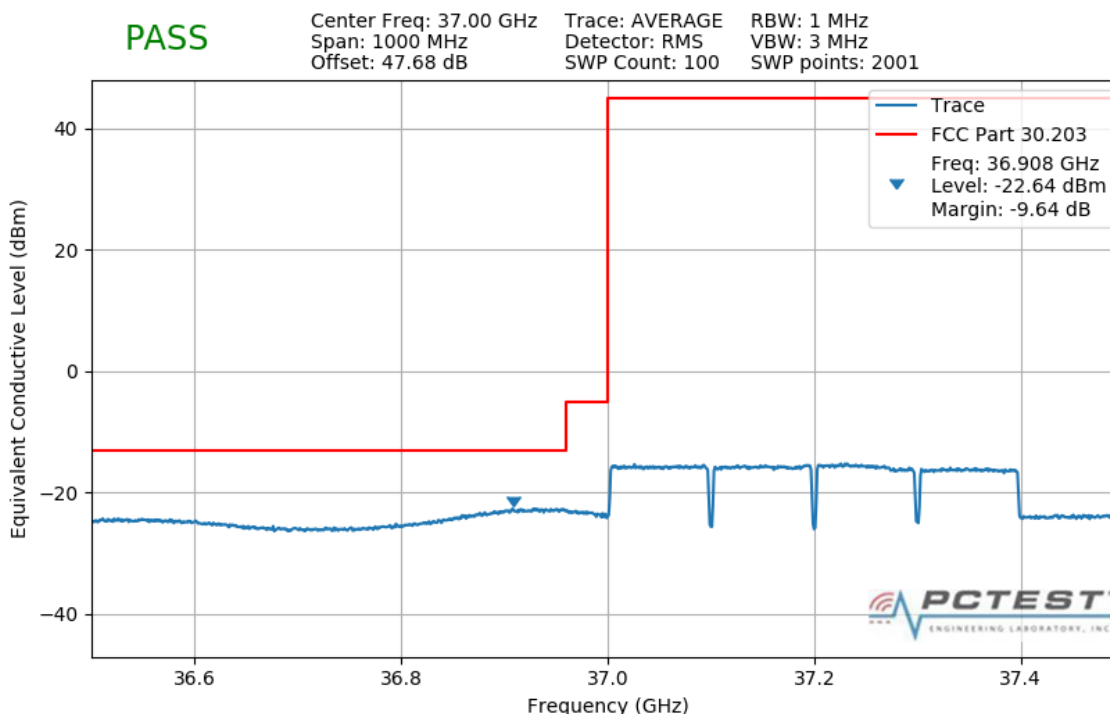


Plot 7-508. Band Edge Plot (4CC 100M 16QAM Low Channel – 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 292 of 304



Plot 7-509. Band Edge Plot (4CC 100M 64QAM Low Channel – 1 RB 0 offset)



Plot 7-510. Band Edge Plot (4CC 100M QPSK Low Channel – 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 293 of 304

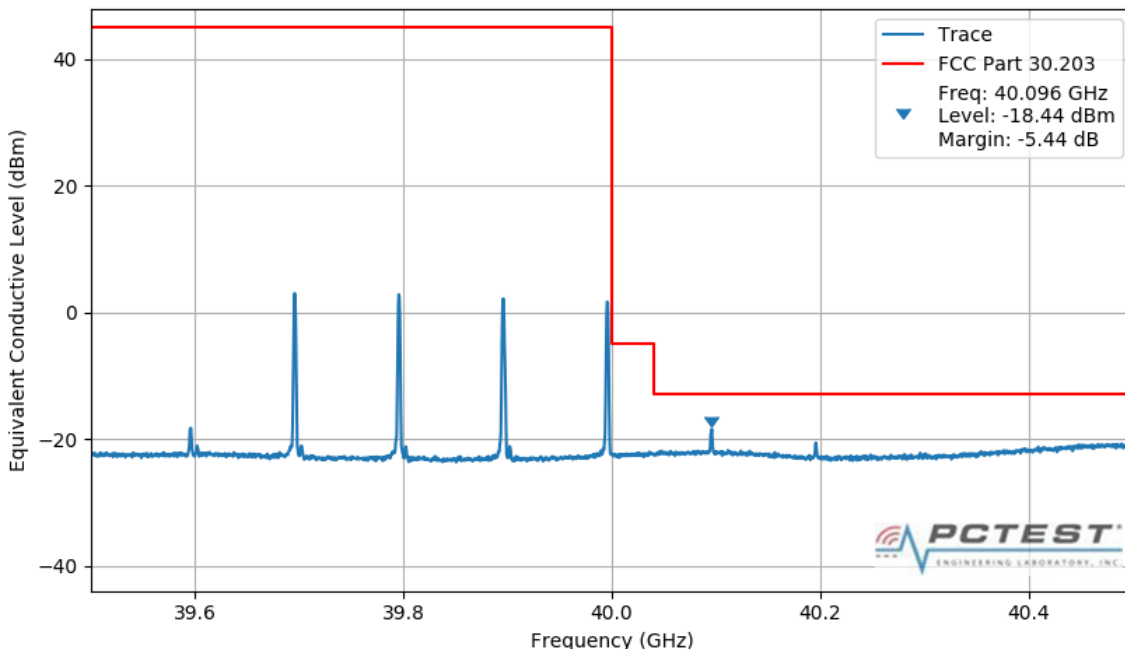
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-511. Band Edge Plot (4CC 100M QPSK Hi Channel- 1 RB 0 offset)

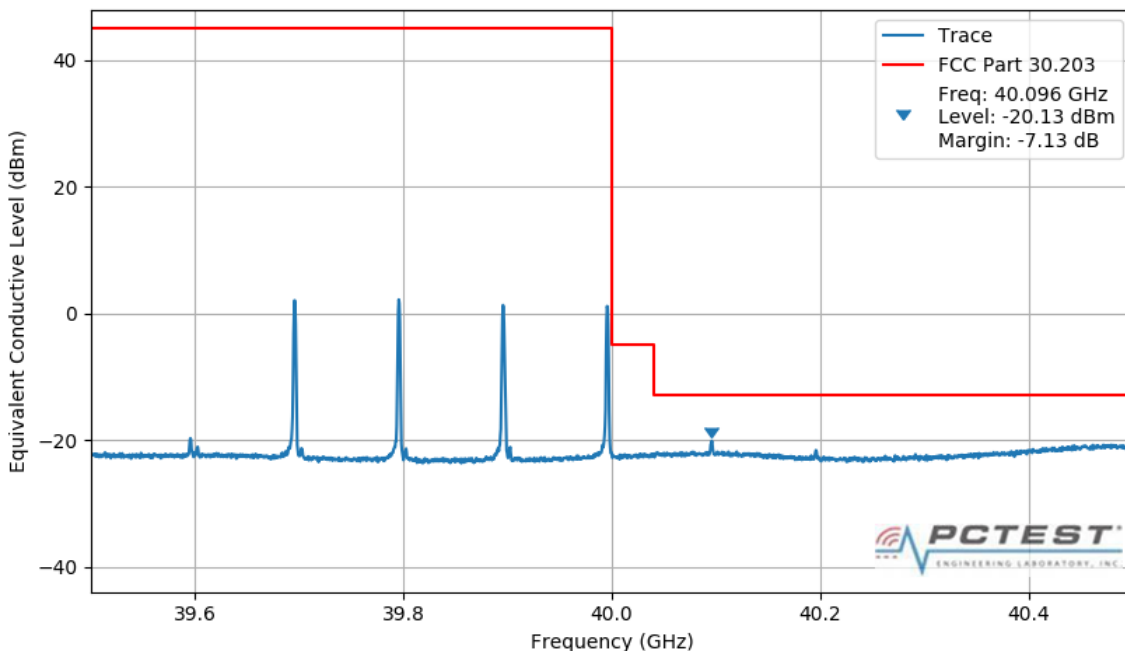
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-512. Band Edge Plot (4CC 100M 16QAM Hi Channel- 1 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 294 of 304

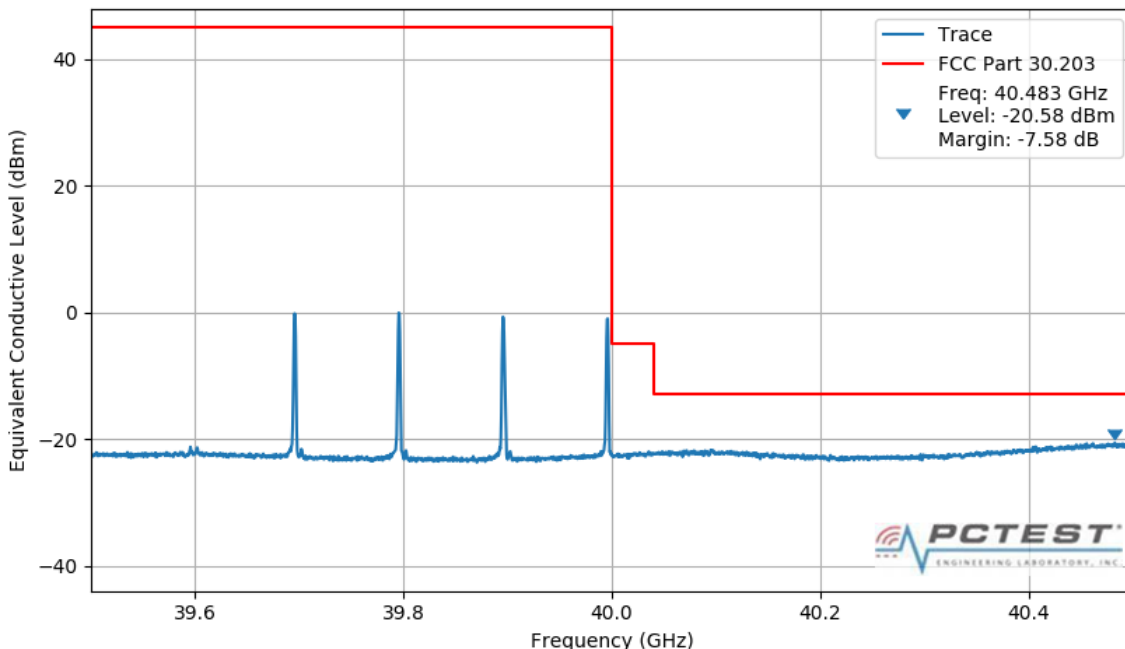
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-513. Band Edge Plot (4CC 100M 64QAM Hi Channel – 1 RB 0 offset)

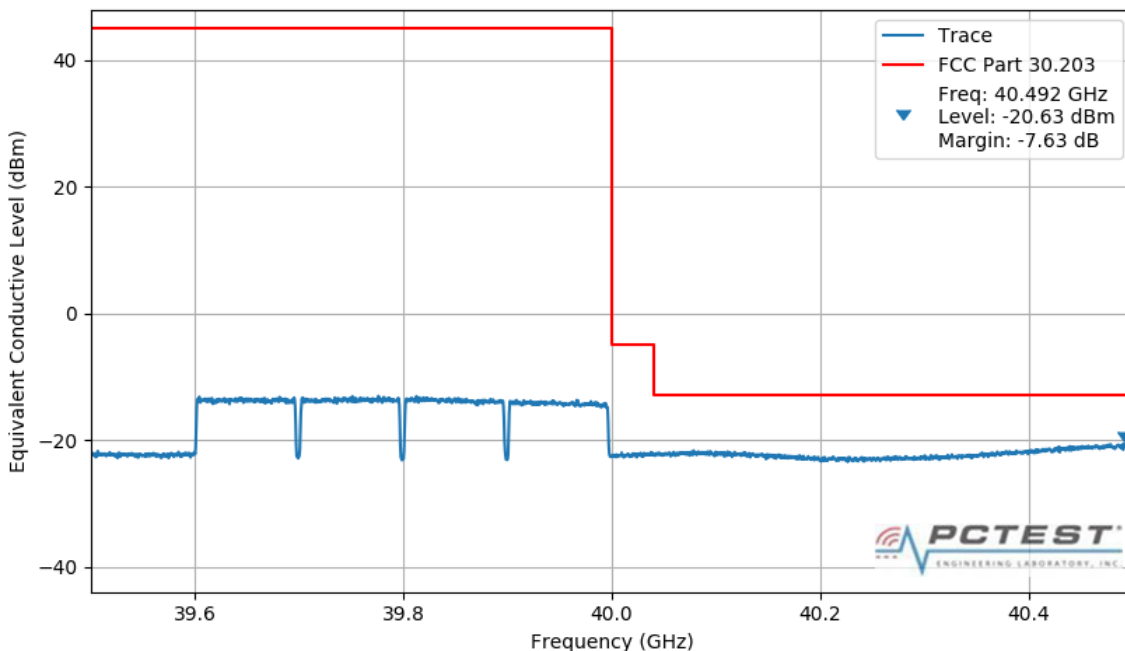
PASS

Center Freq: 40.00 GHz
Span: 1000 MHz
Ref Level: 48.57 dBm

Trace: AVERAGE
Detector: RMS
Offset: 48.57 dB

RBW: 1 MHz
VBW: 3 MHz
SWP Count: 100

SWP points: 2001



Plot 7-514. Band Edge Plot (4CC 100M QPSK Hi Channel– 32 RB 0 offset)

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 295 of 304

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 C63.26-2015 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

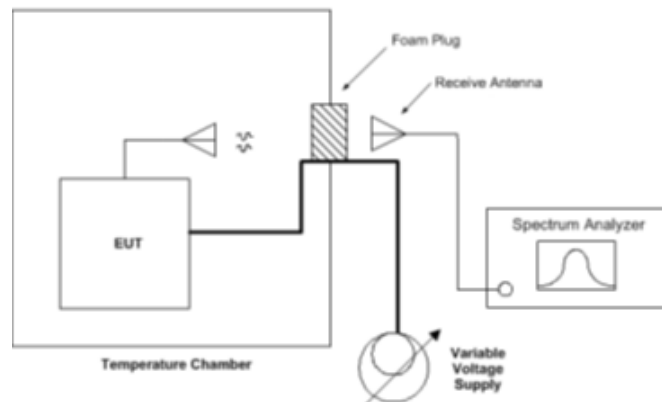


Figure 7-1. Test Instrument & Measurement Setup

The EUT was measured using horn antenna connected to a spectrum analyzer. The EUT was placed inside an environmental chamber.

Test Notes

None

FCC ID: ZNFV450VM	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 296 of 304

Frequency Stability Measurements

§2.1055

OPERATING FREQUENCY: 27,923,520,000 Hz

CHANNEL: 2077891

REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	27,923,420,137	99,863	0.0003576
100 %		- 20	27,923,757,355	-237,355	-0.0008500
100 %		- 10	27,923,705,059	-185,059	-0.0006627
100 %		0	27,923,739,827	-219,827	-0.0007872
100 %		+ 10	27,923,751,372	-231,372	-0.0008286
100 %		+ 20	27,923,675,293	-155,293	-0.0005561
100 %		+ 30	27,923,550,019	-30,019	-0.0001075
100 %		+ 40	27,923,478,001	41,999	0.0001504
100 %		+ 50	27,923,340,540	179,460	0.0006427
BATT. ENDPOINT	3.59	+ 20	27,923,448,913	71,087	0.0002546

Table 7-34. 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.

FCC ID: ZNFV450VM	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset	Page 297 of 304

Frequency Stability Measurements

§2.1055

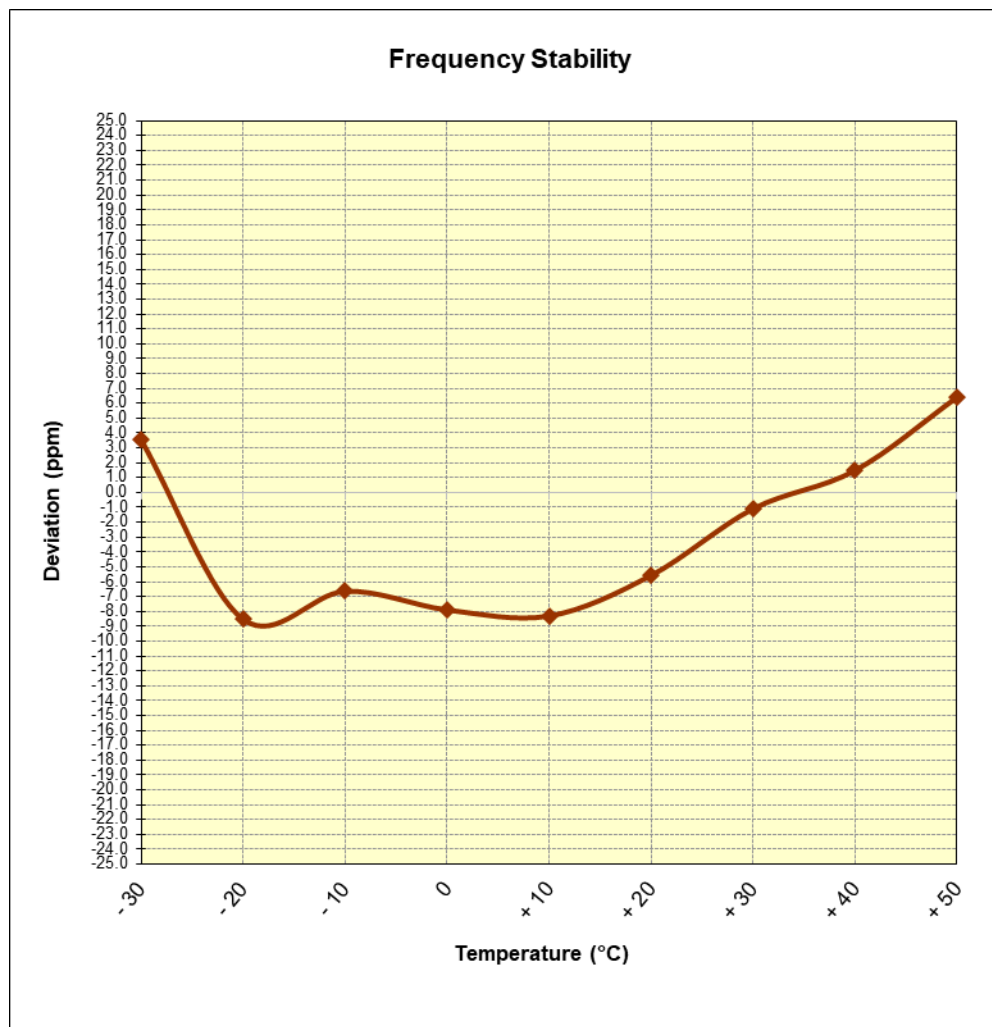


Figure 7-2. Frequency Stability Graph

FCC ID: ZNFV450VM	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 298 of 304

Frequency Stability Measurements

§2.1055

OPERATING FREQUENCY: 38,498,880,000 Hz
 CHANNEL: 2253313
 REFERENCE VOLTAGE: 4.20 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.20	- 30	38,499,275,557	-395,557	-0.0010275
100 %		- 20	38,499,579,390	-699,390	-0.0018167
100 %		- 10	38,498,968,937	-88,937	-0.0002310
100 %		0	38,498,960,632	-80,632	-0.0002094
100 %		+ 10	38,498,960,632	-80,632	-0.0002094
100 %		+ 20	38,498,668,888	211,112	0.0005484
100 %		+ 30	38,498,687,693	192,307	0.0004995
100 %		+ 40	38,498,497,406	382,594	0.0009938
100 %		+ 50	38,498,735,193	144,807	0.0003761
BATT. ENDPOINT	3.59	+ 20	38,498,545,542	334,458	0.0008687

Table 7-35. 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.

FCC ID: ZNFV450VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 299 of 304

Frequency Stability Measurements

§2.1055

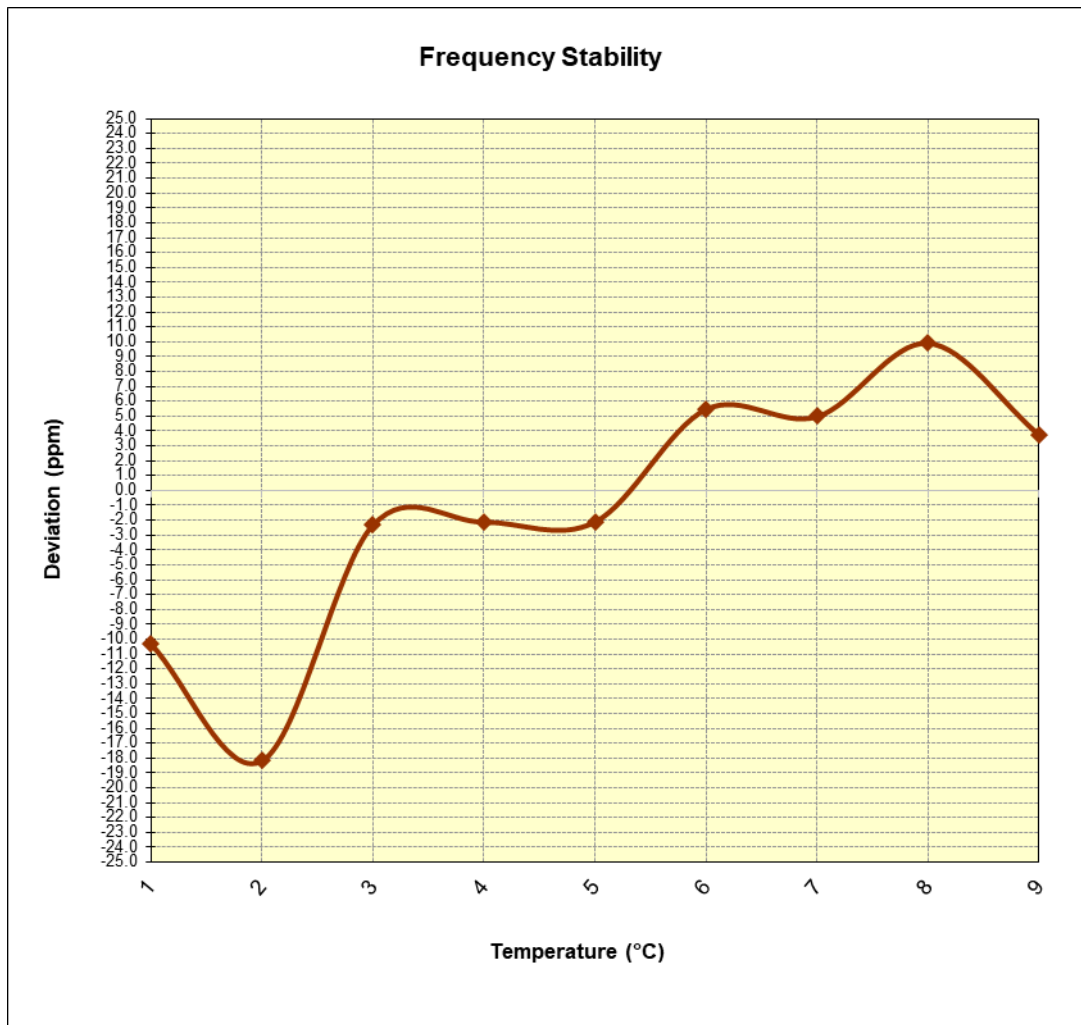


Figure 7-3. Frequency Stability Graph

FCC ID: ZNFV450VM	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 300 of 304

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFV450VM** complies with all the requirements of Part 30.

FCC ID: ZNFV450VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 301 of 304

© 2019 PCTEST Engineering Laboratory, Inc.

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 Engineering Laboratory, Inc. 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.

9.0 APPENDIX A

9.1 Virginia Diodes Mixer Verification Certificate



Virginia Diodes, Inc

Certificate of Conformance

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

From: Virginia Diodes, Inc

Packing List No: 181177
Shipping Date: 05/14/18

Today's Date: 05/14/18
PO Number: 180416.DP1R

Attention: Yelena Wedekind
Phone: 410-290-6652

Quantity	Shipped	Unit	Description	Order-Job Number
1	EA	VDIWR12.0SAX	WR12SAX - Spectrum Analyzer Extension Module / SN: SAX 252	18171A-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: ZNFV450VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 302 of 304



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

Packing List No: 181120
Shipping Date: 05/08/18

Today's Date: 05/08/18
PO Number: 180416.DP1R

Attn: Yelena Wedekind

Phone: 1-410-290-6652

Quantity	Shipped	Unit	Description	Order-Job Number
1	EA	VDIWR8.0SAX WR8.0SAX - Spectrum Analyzer Extension Module; SN: SAX 253.	18171B-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: ZNFV450VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 303 of 304



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

Packing List No: 181247
Shipping Date: 05/21/18

Today's Date: 05/22/18
PO Number: 180416.DP1R

Attn: Yelena Wedekind

Phone: 1-410-290-6652

Quantity	Shipped	Unit	Description	Order-Job Number
1	EA	VDIWR5.1SAX	WR5.1SAX - Spectrum Analyzer Extension Module; SN: SAX 254.	18171C-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: ZNFV450VM		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1901150005-14-R2.ZNF	Test Dates: 1/21 -4/26/2019	EUT Type: Portable Handset		Page 304 of 304