



PART 27 MEASUREMENT REPORT

Applicant Name:

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

Date of Testing:

12/2/2021 – 2/16/2022

Test Site/Location:

PCTEST Morgan Hill, CA, USA

Test Report Serial No.:

1C2111150079-04-R1.BCG

FCC ID:

BCGA2589

Applicant Name:

Apple Inc.

Application Type:

Certification

Model:

A2589(2591)

EUT Type:

Tablet Device

FCC Classification:

PCS Licensed Transmitter (PCB)

FCC Rule Part:

27

Test Procedure(s):

ANSI C63.26-2015, KDB 971168 D01 v03r01

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

This revised Test Report (S/N: 1C2111150079-04-R1.BCG) supersedes and replaces the previously issued test report 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.

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.



RJ Ortiz
 Executive Vice President

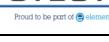


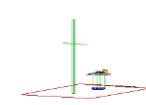
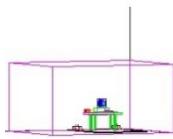
CERT #2041.02

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|--|---|----------------------------|-----------------------------------|--|
| FCC ID: BCGA2589 | PCTEST <small>Proud to be part of element</small> | | PART 27 MEASUREMENT REPORT | Approved by: <small>Technical Manager</small> |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | Page 1 of 266 |

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| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | OBW [MHz] | EIRP | | Emission Designator |
|------------------------|-------------|------------|--------------------------|-----------|----------------|------------------|---------------------|
| | | | | | Max. Power [W] | Max. Power [dBm] | |
| LTE Band 30 | 5 MHz | QPSK | 2307.5 - 2312.5 | 4.5719 | 0.200 | 23.00 | 4M57G7W |
| | | 16QAM | 2307.5 - 2312.5 | 4.5278 | 0.179 | 22.53 | 4M53D7W |
| | | 64QAM | 2307.5 - 2312.5 | 4.5340 | 0.142 | 21.52 | 4M53D7W |
| | | 256QAM | 2307.5 - 2312.5 | 4.5240 | 0.072 | 18.60 | 4M52D7W |
| | 10MHz | QPSK | 2310 | 9.0383 | 0.200 | 23.00 | 9M04G7W |
| | | 16QAM | 2310 | 9.0113 | 0.181 | 22.58 | 9M01D7W |
| | | 64QAM | 2310 | 9.0144 | 0.138 | 21.40 | 9M01D7W |
| | | 256QAM | 2310 | 9.0339 | 0.073 | 18.61 | 9M03D7W |
| LTE Band 7 | 5 MHz | QPSK | 2502.5 - 2567.5 | 4.5575 | 0.631 | 28.00 | 4M56G7W |
| | | 16QAM | 2502.5 - 2567.5 | 4.5239 | 0.540 | 27.33 | 4M52D7W |
| | | 64QAM | 2502.5 - 2567.5 | 4.5386 | 0.424 | 26.28 | 4M54D7W |
| | | 256QAM | 2502.5 - 2567.5 | 4.5188 | 0.213 | 23.28 | 4M52D7W |
| | 10 MHz | QPSK | 2505 - 2565 | 9.0130 | 0.607 | 27.83 | 9M01G7W |
| | | 16QAM | 2505 - 2565 | 9.0248 | 0.535 | 27.28 | 9M02D7W |
| | | 64QAM | 2505 - 2565 | 8.9877 | 0.441 | 26.45 | 8M99D7W |
| | | 256QAM | 2505 - 2565 | 8.9871 | 0.210 | 23.23 | 8M99D7W |
| | 15 MHz | QPSK | 2507.5 - 2562.5 | 13.5091 | 0.625 | 27.96 | 13M5G7W |
| | | 16QAM | 2507.5 - 2562.5 | 13.5037 | 0.541 | 27.33 | 13M5D7W |
| | | 64QAM | 2507.5 - 2562.5 | 13.4971 | 0.425 | 26.28 | 13M5D7W |
| | | 256QAM | 2507.5 - 2562.5 | 13.3850 | 0.213 | 23.28 | 13M4D7W |
| | 20 MHz | QPSK | 2510 - 2560 | 17.9401 | 0.631 | 28.00 | 17M9G7W |
| | | 16QAM | 2510 - 2560 | 17.9852 | 0.554 | 27.43 | 18M0D7W |
| | | 64QAM | 2510 - 2560 | 17.9458 | 0.429 | 26.33 | 17M9D7W |
| | | 256QAM | 2510 - 2560 | 17.9906 | 0.215 | 23.33 | 18M0D7W |
| LTE Band 41 (PC2) | 5 MHz | QPSK | 2498.5 - 2687.5 | 4.5372 | 0.820 | 29.14 | 4M54G7W |
| | | 16QAM | 2498.5 - 2687.5 | 4.5124 | 0.614 | 27.88 | 4M51D7W |
| | | 64QAM | 2498.5 - 2687.5 | 4.5239 | 0.500 | 26.99 | 4M52D7W |
| | | 256QAM | 2498.5 - 2687.5 | 4.5242 | 0.302 | 24.80 | 4M52D7W |
| | 10 MHz | QPSK | 2501 - 2685 | 9.0129 | 0.843 | 29.26 | 9M01G7W |
| | | 16QAM | 2501 - 2685 | 9.0219 | 0.643 | 28.08 | 9M02D7W |
| | | 64QAM | 2501 - 2685 | 9.0188 | 0.618 | 27.91 | 9M02D7W |
| | | 256QAM | 2501 - 2685 | 9.0254 | 0.283 | 24.52 | 9M03D7W |
| | 15 MHz | QPSK | 2503.5 - 2682.5 | 13.4837 | 0.841 | 29.25 | 13M5G7W |
| | | 16QAM | 2503.5 - 2682.5 | 13.5086 | 0.564 | 27.51 | 13M5D7W |
| | | 64QAM | 2503.5 - 2682.5 | 13.4635 | 0.461 | 26.64 | 13M5D7W |
| | | 256QAM | 2503.5 - 2682.5 | 13.4933 | 0.316 | 24.99 | 13M5D7W |
| | 20 MHz | QPSK | 2506 - 2680 | 17.9393 | 0.820 | 29.14 | 17M9G7W |
| | | 16QAM | 2506 - 2680 | 17.9450 | 0.594 | 27.74 | 17M9D7W |
| | | 64QAM | 2506 - 2680 | 17.9537 | 0.454 | 26.57 | 18M0D7W |
| | | 256QAM | 2506 - 2680 | 17.9354 | 0.303 | 24.82 | 17M9D7W |
| LTE Band 41 (PC3) | 5 MHz | QPSK | 2498.5 - 2687.5 | 4.5372 | 0.705 | 28.48 | 4M54G7W |
| | | 16QAM | 2498.5 - 2687.5 | 4.5124 | 0.578 | 27.62 | 4M51D7W |
| | | 64QAM | 2498.5 - 2687.5 | 4.5239 | 0.541 | 27.33 | 4M52D7W |
| | | 256QAM | 2498.5 - 2687.5 | 4.5242 | 0.237 | 23.74 | 4M52D7W |
| | 10 MHz | QPSK | 2501 - 2685 | 9.0129 | 0.733 | 28.65 | 9M01G7W |
| | | 16QAM | 2501 - 2685 | 9.0219 | 0.615 | 27.89 | 9M02D7W |
| | | 64QAM | 2501 - 2685 | 9.0188 | 0.579 | 27.63 | 9M02D7W |
| | | 256QAM | 2501 - 2685 | 9.0254 | 0.218 | 23.38 | 9M03D7W |
| | 15 MHz | QPSK | 2503.5 - 2682.5 | 13.4837 | 0.703 | 28.47 | 13M5G7W |
| | | 16QAM | 2503.5 - 2682.5 | 13.5086 | 0.543 | 27.35 | 13M5D7W |
| | | 64QAM | 2503.5 - 2682.5 | 13.4635 | 0.512 | 27.09 | 13M5D7W |
| | | 256QAM | 2503.5 - 2682.5 | 13.4933 | 0.244 | 23.88 | 13M5D7W |
| | 20 MHz | QPSK | 2506 - 2680 | 17.9393 | 0.711 | 28.52 | 17M9G7W |
| | | 16QAM | 2506 - 2680 | 17.9450 | 0.590 | 27.71 | 17M9D7W |
| | | 64QAM | 2506 - 2680 | 17.9537 | 0.537 | 27.30 | 18M0D7W |
| | | 256QAM | 2506 - 2680 | 17.9354 | 0.231 | 23.64 | 17M9D7W |
| ULCA LTE Band 7 | 20 + 20 MHz | QPSK | 2520 - 2550 | 37.4432 | 0.665 | 28.23 | 37M4G7W |
| | | 16QAM | 2520 - 2550 | 37.4607 | 0.337 | 25.27 | 37M5D7W |
| | | 64QAM | 2520 - 2550 | 37.5136 | 0.332 | 25.21 | 37M5D7W |
| | | 256QAM | 2520 - 2550 | 37.4341 | 0.213 | 23.28 | 37M4D7W |
| ULCA LTE Band 41 (PC2) | 20 + 20 MHz | QPSK | 2516 - 2670 | 37.5397 | 0.899 | 29.54 | 37M5G7W |
| | | 16QAM | 2516 - 2670 | 37.4898 | 0.484 | 26.85 | 37M5D7W |
| | | 64QAM | 2516 - 2670 | 37.4648 | 0.446 | 26.49 | 37M5D7W |
| | | 256QAM | 2516 - 2670 | 37.4283 | 0.303 | 24.82 | 37M4D7W |
| ULCA LTE Band 41 (PC3) | 20 + 20 MHz | QPSK | 2516 - 2670 | 37.5397 | 0.740 | 28.69 | 37M5G7W |
| | | 16QAM | 2516 - 2670 | 37.4898 | 0.382 | 25.82 | 37M5D7W |
| | | 64QAM | 2516 - 2670 | 37.4648 | 0.385 | 25.85 | 37M5D7W |
| | | 256QAM | 2516 - 2670 | 37.4283 | 0.242 | 23.84 | 37M4D7W |

EUT Overview

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|--|---|----------------------------|--|----------------------------|--|---------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST® Proud to be part of  | | | PART 27 MEASUREMENT REPORT | | | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | | Page 3 of 266 | |

| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | OBW [MHz] | EIRP | | Emission Designator |
|-------------|-----------|------------|--------------------------|-----------|----------------|------------------|---------------------|
| | | | | | Max. Power [W] | Max. Power [dBm] | |
| NR Band n30 | 5 MHz | π/2 BPSK | 2307.5 - 2312.5 | 4.4868 | 0.186 | 22.70 | 4M49G7W |
| | | QPSK | 2307.5 - 2312.5 | 4.5117 | 0.180 | 22.54 | 4M51G7W |
| | | 16QAM | 2307.5 - 2312.5 | 4.5124 | 0.141 | 21.49 | 4M51D7W |
| | | 64QAM | 2307.5 - 2312.5 | 4.5297 | 0.115 | 20.62 | 4M53D7W |
| | | 256QAM | 2307.5 - 2312.5 | 4.5286 | 0.072 | 18.59 | 4M53D7W |
| | 10MHz | π/2 BPSK | 2310 | 8.9945 | 0.186 | 22.70 | 8M99G7W |
| | | QPSK | 2310 | 9.3264 | 0.186 | 22.70 | 9M33G7W |
| | | 16QAM | 2310 | 9.3388 | 0.150 | 21.75 | 9M34D7W |
| | | 64QAM | 2310 | 9.3591 | 0.119 | 20.75 | 9M36D7W |
| | | 256QAM | 2310 | 9.3134 | 0.080 | 19.01 | 9M31D7W |
| NR Band n7 | 5 MHz | π/2 BPSK | 2502.5 - 2567.5 | 4.5140 | 0.594 | 27.74 | 4M51G7W |
| | | QPSK | 2502.5 - 2567.5 | 4.5361 | 0.614 | 27.88 | 4M54G7W |
| | | 16QAM | 2502.5 - 2567.5 | 4.4969 | 0.470 | 26.72 | 4M50D7W |
| | | 64QAM | 2502.5 - 2567.5 | 4.4921 | 0.340 | 25.31 | 4M49D7W |
| | | 256QAM | 2502.5 - 2567.5 | 4.5083 | 0.196 | 22.93 | 4M51D7W |
| | 10MHz | π/2 BPSK | 2505 - 2565 | 9.0307 | 0.593 | 27.73 | 9M03G7W |
| | | QPSK | 2505 - 2565 | 9.3225 | 0.626 | 27.96 | 9M32G7W |
| | | 16QAM | 2505 - 2565 | 9.3299 | 0.455 | 26.58 | 9M33D7W |
| | | 64QAM | 2505 - 2565 | 9.3478 | 0.323 | 25.09 | 9M35D7W |
| | | 256QAM | 2505 - 2565 | 9.3732 | 0.202 | 23.05 | 9M37D7W |
| | 15 MHz | π/2 BPSK | 2507.5 - 2562.5 | 13.4729 | 0.594 | 27.74 | 13M5G7W |
| | | QPSK | 2507.5 - 2562.5 | 14.1705 | 0.559 | 27.47 | 14M2G7W |
| | | 16QAM | 2507.5 - 2562.5 | 14.1888 | 0.431 | 26.34 | 14M2D7W |
| | | 64QAM | 2507.5 - 2562.5 | 14.1650 | 0.319 | 25.04 | 14M2D7W |
| | | 256QAM | 2507.5 - 2562.5 | 14.2437 | 0.200 | 23.00 | 14M2D7W |
| | 20MHz | π/2 BPSK | 2510 - 2560 | 17.9689 | 0.589 | 27.70 | 18M0G7W |
| | | QPSK | 2510 - 2560 | 18.9737 | 0.567 | 27.54 | 19M0G7W |
| | | 16QAM | 2510 - 2560 | 18.9578 | 0.436 | 26.39 | 19M0D7W |
| | | 64QAM | 2510 - 2560 | 18.9694 | 0.348 | 25.42 | 19M0D7W |
| | | 256QAM | 2510 - 2560 | 18.9883 | 0.194 | 22.88 | 19M0D7W |
| | 25MHz | π/2 BPSK | 2512.5 - 2557.5 | 23.0198 | 0.590 | 27.71 | 23M0G7W |
| | | QPSK | 2512.5 - 2557.5 | 23.9009 | 0.572 | 27.58 | 23M9G7W |
| | | 16QAM | 2512.5 - 2557.5 | 23.8714 | 0.428 | 26.32 | 23M9D7W |
| | | 64QAM | 2512.5 - 2557.5 | 23.9423 | 0.335 | 25.25 | 23M9D7W |
| | | 256QAM | 2512.5 - 2557.5 | 23.8921 | 0.209 | 23.20 | 23M9D7W |
| | 30MHz | π/2 BPSK | 2515 - 2555 | 28.7810 | 0.597 | 27.76 | 28M8G7W |
| | | QPSK | 2515 - 2555 | 28.7573 | 0.567 | 27.54 | 28M8G7W |
| | | 16QAM | 2515 - 2555 | 28.7363 | 0.437 | 26.41 | 28M7D7W |
| | | 64QAM | 2515 - 2555 | 28.7495 | 0.325 | 25.12 | 28M7D7W |
| | | 256QAM | 2515 - 2555 | 28.7010 | 0.199 | 22.98 | 28M7D7W |
| | 40MHz | π/2 BPSK | 2520 - 2550 | 38.6393 | 0.595 | 27.74 | 38M6G7W |
| | | QPSK | 2520 - 2550 | 38.7380 | 0.574 | 27.59 | 38M7G7W |
| | | 16QAM | 2520 - 2550 | 38.6833 | 0.426 | 26.29 | 38M7D7W |
| | | 64QAM | 2520 - 2550 | 38.7140 | 0.336 | 25.27 | 38M7D7W |
| | | 256QAM | 2520 - 2550 | 38.6891 | 0.206 | 23.15 | 38M7D7W |

EUT Overview

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|---|--------------------------------------|----------------------------|---------------|-----------------------------------|
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| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | Page 4 of 266 | |

| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | OBW [MHz] | EIRP | | Emission Designator |
|-------------------|-----------|------------|--------------------------|-----------|----------------|------------------|---------------------|
| | | | | | Max. Power [W] | Max. Power [dBm] | |
| NR Band n41 (PC2) | 20 MHz | π/2 BPSK | 2506 - 2680 | 17.9258 | 1.024 | 30.10 | 17M9G7W |
| | | QPSK | 2506 - 2680 | 18.3241 | 1.024 | 30.10 | 18M3G7W |
| | | 16QAM | 2506 - 2680 | 18.2980 | 0.820 | 29.14 | 18M3D7W |
| | | 64QAM | 2506 - 2680 | 18.3638 | 0.612 | 27.87 | 18M4D7W |
| | | 256QAM | 2506 - 2680 | 18.2542 | 0.373 | 25.72 | 18M3D7W |
| | 30MHz | π/2 BPSK | 2511 - 2675 | 27.0003 | 1.096 | 30.40 | 27M0G7W |
| | | QPSK | 2511 - 2675 | 27.9545 | 1.096 | 30.40 | 28M0G7W |
| | | 16QAM | 2511 - 2675 | 28.0110 | 0.883 | 29.46 | 28M0D7W |
| | | 64QAM | 2511 - 2675 | 28.0792 | 0.611 | 27.86 | 28M1D7W |
| | | 256QAM | 2511 - 2675 | 27.8769 | 0.362 | 25.59 | 27M9D7W |
| | 40 MHz | π/2 BPSK | 2516 - 2670 | 35.8523 | 1.075 | 30.31 | 35M9G7W |
| | | QPSK | 2516 - 2670 | 37.9464 | 1.096 | 30.40 | 37M9G7W |
| | | 16QAM | 2516 - 2670 | 37.9719 | 0.842 | 29.26 | 38M0D7W |
| | | 64QAM | 2516 - 2670 | 37.8888 | 0.610 | 27.86 | 37M9D7W |
| | | 256QAM | 2516 - 2670 | 37.9703 | 0.370 | 25.68 | 38M0D7W |
| | 50 MHz | π/2 BPSK | 2521 - 2665 | 45.9062 | 1.057 | 30.24 | 45M9G7W |
| | | QPSK | 2521 - 2665 | 47.8003 | 1.093 | 30.38 | 47M8G7W |
| | | 16QAM | 2521 - 2665 | 47.7809 | 0.880 | 29.44 | 47M8D7W |
| | | 64QAM | 2521 - 2665 | 47.8627 | 0.635 | 28.03 | 47M9D7W |
| | | 256QAM | 2521 - 2665 | 47.8978 | 0.360 | 25.56 | 47M9D7W |
| | 60 MHz | π/2 BPSK | 2526 - 2660 | 58.4746 | 1.096 | 30.40 | 58M5G7W |
| | | QPSK | 2526 - 2660 | 58.4038 | 1.082 | 30.34 | 58M4G7W |
| | | 16QAM | 2526 - 2660 | 58.1149 | 0.830 | 29.19 | 58M1D7W |
| | | 64QAM | 2526 - 2660 | 58.1120 | 0.582 | 27.65 | 58M1D7W |
| | | 256QAM | 2526 - 2660 | 58.1230 | 0.358 | 25.54 | 58M1D7W |
| | 80 MHz | π/2 BPSK | 2536 - 2650 | 77.3001 | 1.030 | 30.13 | 77M3G7W |
| | | QPSK | 2536 - 2650 | 78.0065 | 1.091 | 30.38 | 78M0G7W |
| | | 16QAM | 2536 - 2650 | 77.7708 | 0.839 | 29.24 | 77M8D7W |
| | | 64QAM | 2536 - 2650 | 77.9300 | 0.623 | 27.94 | 77M9D7W |
| | | 256QAM | 2536 - 2650 | 77.8332 | 0.355 | 25.50 | 77M8D7W |
| | 90 MHz | π/2 BPSK | 2541 - 2645 | 87.5368 | 1.000 | 30.00 | 87M5G7W |
| | | QPSK | 2541 - 2645 | 88.1153 | 1.072 | 30.30 | 88M1G7W |
| | | 16QAM | 2541 - 2645 | 88.0604 | 0.819 | 29.13 | 88M1D7W |
| | | 64QAM | 2541 - 2645 | 88.0405 | 0.598 | 27.77 | 88M0D7W |
| | | 256QAM | 2541 - 2645 | 87.8091 | 0.359 | 25.55 | 87M8D7W |
| | 100 MHz | π/2 BPSK | 2546 - 2640 | 97.3138 | 1.036 | 30.15 | 97M3G7W |
| | | QPSK | 2546 - 2640 | 97.9934 | 1.092 | 30.38 | 98M0G7W |
| | | 16QAM | 2546 - 2640 | 98.0287 | 0.838 | 29.23 | 98M0D7W |
| | | 64QAM | 2546 - 2640 | 98.0959 | 0.620 | 27.92 | 98M1D7W |
| | | 256QAM | 2546 - 2640 | 98.1558 | 0.360 | 25.57 | 98M2D7W |
| NR Band n41 (PC3) | 20 MHz | π/2 BPSK | 2506 - 2680 | 17.9258 | 0.674 | 28.29 | 17M9G7W |
| | | QPSK | 2506 - 2680 | 18.3241 | 0.680 | 28.32 | 18M3G7W |
| | | 16QAM | 2506 - 2680 | 18.2980 | 0.536 | 27.29 | 18M3D7W |
| | | 64QAM | 2506 - 2680 | 18.3638 | 0.401 | 26.03 | 18M4D7W |
| | | 256QAM | 2506 - 2680 | 18.2542 | 0.222 | 23.47 | 18M3D7W |
| | 30MHz | π/2 BPSK | 2511 - 2675 | 27.0003 | 0.687 | 28.37 | 27M0G7W |
| | | QPSK | 2511 - 2675 | 27.9545 | 0.692 | 28.40 | 28M0G7W |
| | | 16QAM | 2511 - 2675 | 28.0110 | 0.569 | 27.55 | 28M0D7W |
| | | 64QAM | 2511 - 2675 | 28.0792 | 0.402 | 26.04 | 28M1D7W |
| | | 256QAM | 2511 - 2675 | 27.8769 | 0.228 | 23.58 | 27M9D7W |
| | 40 MHz | π/2 BPSK | 2516 - 2670 | 35.8523 | 0.691 | 28.40 | 35M9G7W |
| | | QPSK | 2516 - 2670 | 37.9464 | 0.692 | 28.40 | 37M9G7W |
| | | 16QAM | 2516 - 2670 | 37.9719 | 0.565 | 27.52 | 38M0D7W |
| | | 64QAM | 2516 - 2670 | 37.8888 | 0.399 | 26.01 | 37M9D7W |
| | | 256QAM | 2516 - 2670 | 37.9703 | 0.236 | 23.72 | 38M0D7W |
| | 50 MHz | π/2 BPSK | 2521 - 2665 | 45.9062 | 0.672 | 28.28 | 45M9G7W |
| | | QPSK | 2521 - 2665 | 47.8003 | 0.661 | 28.20 | 47M8G7W |
| | | 16QAM | 2521 - 2665 | 47.7809 | 0.535 | 27.29 | 47M8D7W |
| | | 64QAM | 2521 - 2665 | 47.8627 | 0.388 | 25.89 | 47M9D7W |
| | | 256QAM | 2521 - 2665 | 47.8978 | 0.222 | 23.46 | 47M9D7W |
| | 60 MHz | π/2 BPSK | 2526 - 2660 | 58.4746 | 0.665 | 28.23 | 58M5G7W |
| | | QPSK | 2526 - 2660 | 58.4038 | 0.649 | 28.12 | 58M4G7W |
| | | 16QAM | 2526 - 2660 | 58.1149 | 0.536 | 27.29 | 58M1D7W |
| | | 64QAM | 2526 - 2660 | 58.1120 | 0.402 | 26.04 | 58M1D7W |
| | | 256QAM | 2526 - 2660 | 58.1230 | 0.224 | 23.50 | 58M1D7W |
| | 80 MHz | π/2 BPSK | 2536 - 2650 | 77.3001 | 0.672 | 28.28 | 77M3G7W |
| | | QPSK | 2536 - 2650 | 78.0065 | 0.666 | 28.24 | 78M0G7W |
| | | 16QAM | 2536 - 2650 | 77.7708 | 0.520 | 27.16 | 77M8D7W |
| | | 64QAM | 2536 - 2650 | 77.9300 | 0.378 | 25.78 | 77M9D7W |
| | | 256QAM | 2536 - 2650 | 77.8332 | 0.225 | 23.52 | 77M8D7W |
| | 90 MHz | π/2 BPSK | 2541 - 2645 | 87.5368 | 0.679 | 28.32 | 87M5G7W |
| | | QPSK | 2541 - 2645 | 88.1153 | 0.662 | 28.21 | 88M1G7W |
| | | 16QAM | 2541 - 2645 | 88.0604 | 0.540 | 27.33 | 88M1D7W |
| | | 64QAM | 2541 - 2645 | 88.0405 | 0.388 | 25.88 | 88M0D7W |
| | | 256QAM | 2541 - 2645 | 87.8091 | 0.223 | 23.47 | 87M8D7W |
| | 100 MHz | π/2 BPSK | 2546 - 2640 | 97.3138 | 0.671 | 28.26 | 97M3G7W |
| | | QPSK | 2546 - 2640 | 97.9934 | 0.656 | 28.17 | 98M0G7W |
| | | 16QAM | 2546 - 2640 | 98.0287 | 0.540 | 27.33 | 98M0D7W |
| | | 64QAM | 2546 - 2640 | 98.0959 | 0.394 | 25.96 | 98M1D7W |
| | | 256QAM | 2546 - 2640 | 98.1558 | 0.231 | 23.64 | 98M2D7W |

EUT Overview

| | | | | | |
|--|--------------------------------------|----------------------------|--|--|-----------------------------------|
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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 facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

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

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (22831) test laboratory with the site description on file with ISED.

| | | | | |
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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID:BCGA2589**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 27.

Test Device Serial No.: Y257GJ4FH2, MK616422XY, MVX6WLP646, HCVMXQ057K, DLX1462005314921G

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8), WPT

This device supports BT Beamforming

All measurements were performed with NS01 for all antennas.

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

| Antenna | Simultaneous Tx Config | WLAN | Bluetooth | WCDMA / LTE / FR1 NR | LTE / FR1 NR | | | UNII |
|---------|------------------------|-----------------|--------------------------|----------------------|--------------|-----------------|---|------|
| | | 802.11 b/g/n/ax | BDR, FDR, HDR4/8, LE1/2M | Mid Band | High Band | Ultra High Band | | |
| 3A | Config 1 | ✗ | ✓ | ✗ | ✗ | ✗ | ✓ | |
| 3A | Config 2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | |
| 3A | Config 3 | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | |
| 3A | Config 4 | ✗ | ✓ | ✗ | ✓ | ✗ | ✓ | |
| 3A | Config 5 | ✗ | ✗ | ✗ | ✓ | ✗ | ✓ | |
| 3A | Config 6 | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | |
| 3A | Config 7 | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | |
| 3A | Config 8 | ✗ | ✓ | ✓ | ✗ | ✗ | ✓ | |
| 3A | Config 9 | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | |
| 1A | Config 10 | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | |
| 1A | Config 11 | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | |
| 1A | Config 12 | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | |
| 1A | Config 13 | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | |
| 1B | Config 14 | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | |
| 2B | Config 15 | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | |

Table 2-1. Simultaneous Transmission Configurations

✓ = Support; ✗ = Not Support

Note:

Wi-Fi 2.4GHz and Bluetooth 2.4 GHz can transmit simultaneously on separate antennas. 2.4 GHz WLAN Antenna 3a can only transmit simultaneously with 2.4GHz Bluetooth Antenna 1a. In this scenario Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Regulatory max cap) power.

| | | | | |
|---|--------------------------------------|----------------------------|--|-----------------------------------|
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2.3 Antenna Description

Following antenna gains provided by manufacturer were used for testing.

| Band | Antenna Gain (dBi) | | | |
|--------------|--------------------|------------|------------|------------|
| | Antenna 4 | Antenna 2a | Antenna 3a | Antenna 1a |
| LTE Band 30 | 1.5 | 0.9 | 0.3 | 0.6 |
| LTE Band n30 | | | | |
| LTE Band 7 | 0.8 | 3 | 3.6 | 1.3 |
| LTE Band n7 | | | | |
| LTE Band 41 | 0.5 | 2.7 | 3.1 | 0.9 |
| LTE Band n41 | | | | |

Table 2-2. Highest Antenna Gain

2.4 Test Support Equipment

| Test Support Equipment | | | | | |
|------------------------|--------------------------------------|------------------------------|-------------------------------|--|--|
| 1 | Apple MacBook Pro w/AC/DC Adapter | Model: A2141 Model: A2166 | S/N: C02DV7VKMD6T S/N: N/A | | |
| 2 | Apple USB-C Cable | Model: Chimp | S/N: 420A57 | | |
| 3 | Apple USB-C Cable | Model: Spartan | S/N: 000MKTR02U | | |
| 4 | USB-C Cable w/ AC Adapter | Model: A146 Model: A2305 | S/N: N/A S/N: N/A | | |
| 5 | Apple Pencil | Model: N/A | S/N: GQXGSXBJKM9 | | |
| 6 | DC Power Supply | Model: KPS3010D | S/N: N/A | | |

Table 2-3. Test Support Equipment

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
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2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.26 2015, TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

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

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

All possible simultaneous transmission configurations have been investigated and the worst case config has been reported.

| Description | LTE (Band 41) | Bluetooth | UNII |
|---------------------------|----------------|--------------|------------|
| Antenna | Antenna 3a | Antenna 3a | Antenna 3a |
| Channel | 40620 | 78 | 36 |
| Operating Frequency (MHz) | 2595 | 2480 | 5180 |
| Mode/Modulation | QPSK/1RB/20MHz | BDR/GFSK/ePA | 802.11n |

Table 2-4. Worst Case Simultaneous Transmission Configuration

2.6 Software and Firmware

The test was conducted with firmware version 19E11500Q installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

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

| | | | | |
|--|--------------------------------------|----------------------------|--|-----------------------------------|
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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI C63.26 2015, TIA-603-E-2016) and “Measurement Guidance for Certification of Licensed Digital Transmitters” (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 Radiated Spurious Emissions

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

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:

$$E_{[\text{dB}\mu\text{V}/\text{m}]} = \text{Measured amplitude level}_{[\text{dBm}]} + 107 + \text{Cable Loss}_{[\text{dB}]} + \text{Antenna Factor}_{[\text{dB}/\text{m}]} \\ \text{And}$$

$$\text{EIRP}_{[\text{dBm}]} = E_{[\text{dB}\mu\text{V}/\text{m}]} + 20\log D - 104.8; \text{ where } D \text{ is the measurement distance in meters.}$$

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014.

Per KDB 414788 D01 v01r01, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was used while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

Radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015 and TIA-603-E-2016.

| | | | | |
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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. 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 (\pm dB) |
|-----------------------------------|----------------------------------|
| Conducted Bench Top Measurements | 1.65 |
| Radiated Disturbance (<30MHz) | 4.06 |
| Radiated Disturbance (30MHz-1GHz) | 4.30 |
| Radiated Disturbance (1-18GHz) | 4.78 |
| Radiated Disturbance (>18GHz) | 4.79 |

| | | | | |
|--|--|----------------------------|--|-----------------------------------|
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5.0 TEST EQUIPMENT CALIBRATION DATA

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

| Manufacturer | Model | Description | Cal Date | Cal Interval | Cal Due | Serial Number |
|----------------------|-------------|--|------------|--------------|------------|---------------|
| Agilent Technologies | N9030A | 3Hz-44GHz PXA Signal Analyzer | 3/31/2021 | Annual | 3/31/2022 | MY49430244 |
| ATM | 180-442A-KF | 20dB Nominal Gain Horn Antenna | 8/13/2021 | Annual | 8/13/2022 | T058701-01 |
| ESPEC | SU-241 | Tabletop Temperature Chamber | 10/26/2021 | Annual | 10/26/2022 | 92009574 |
| ETS-Lindgren | 3117 | Double Ridged Guide Horn Antenna (1-18GHz) | 10/25/2021 | Annual | 10/25/2022 | 227597 |
| ETS-Lindgren | 3142E | Biconilog Antenna (26-6000MHz) | 10/21/2021 | Annual | 10/21/2022 | 208204 |
| Keysight Technology | N9040B | UXA Signal Analyzer | 2/8/2022 | Annual | 2/8/2023 | MY57212015 |
| Rohde & Schwarz | FSV40 | Signal Analyzer (10Hz-40GHz) | 3/16/2021 | Annual | 3/16/2022 | 101619 |
| Rohde & Schwarz | FSVA3044 | Signal Analyzer (up to 40GHz) | 4/26/2021 | Annual | 4/26/2022 | 101098 |
| Rohde & Schwarz | ESW26 | EMI Test Receiver | 6/11/2021 | Annual | 6/11/2022 | 101299 |
| Rohde & Schwarz | ESW44 | EMI Test Receiver | 12/2/2021 | Annual | 12/2/2022 | 101570 |
| Rohde & Schwarz | CMW500 | Wideband Radio Communication Tester | 10/11/2021 | Annual | 10/11/2022 | 161616 |
| Rohde & Schwarz | CMW500 | Wideband Radio Communication Tester | 11/4/2021 | Annual | 11/4/2022 | 151888 |
| Rohde & Schwarz | TS-PR8 | Pre-Amplifier (30M-6 GHz) | 1/6/2022 | Annual | 1/6/2023 | 102327 |
| Rohde & Schwarz | TS-PR18 | Pre-Amplifier (1-18 GHz) | 1/6/2022 | Annual | 1/6/2023 | 101639 |
| Rohde & Schwarz | TS-PR1840 | Pre-Amplifier (18-40 GHz) | 4/29/2021 | Annual | 4/29/2022 | 100051 |
| Rohde & Schwarz | HFH2-Z2 | Loop Antenna | 4/5/2021 | Annual | 4/5/2022 | 100519 |

Table 5-1. Test Equipment

Notes:

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

| | | | | | |
|--|--|----------------------------|--|-----------------------------------|-----------------------------------|
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6.0 SAMPLE CALCULATIONS

Emission Designator

$\pi/2$ BPSK / QPSK Modulation

Emission Designator = 8M62G7W

BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination of Any

QAM Modulation

Emission Designator = 8M45D7W

BW = 8.45 MHz

D = Amplitude/Angle Modulated

7 = Quantized/Digital Info

W = Combination of Any

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm $- (-24.80) = 50.3$ dBc.

| | | | |
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7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.
 FCC ID: BCGA2589
 FCC Classification: PCS Licensed Transmitter (PCB)
 Mode(s): LTE/NR/ULCA

| Test Condition | Test Description | FCC Part Section(s) | Test Limit | Test Result | Reference |
|----------------|--|---------------------|---|--|------------------------|
| CONDUCTED | Occupied Bandwidth | 2.1049 | N/A | N/A | Section 7.2 |
| | Conducted Band Edge / Spurious Emissions (LTE Band 30) | 2.1051, 27.53(a) | Undesirable emissions must meet the limits detailed in 27.53(a) | PASS | Sections 7.3, 7.4 |
| | Conducted Band Edge / Spurious Emissions (LTE Band 7) | 2.1051, 27.53(m) | Undesirable emissions must meet the limits detailed in 27.53(m) | PASS | Sections 7.3, 7.4 |
| | Conducted Band Edge / Spurious Emissions (LTE Band 41) | | | PASS | Sections 7.3, 7.4 |
| | Conducted Band Edge / Spurious Emissions (NR Band n41) | | | PASS | Sections 7.3, 7.4 |
| | Transmitter Conducted Output Power | 2.1046 | N/A | N/A | See RF Exposure Report |
| | Additional Maximum Power Reduction (A-MPR) | 2.1046 | N/A | N/A | Section 7.5 |
| | Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 30) | 27.50(a)(3) | < 0.25 Watts max. EIRP | PASS | Section 7.6 |
| | Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 7) | 27.50(h)(2) | < 2 Watts max. EIRP | PASS | Section 7.6 |
| | Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 41) | | | PASS | Section 7.6 |
| | Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n41) | | | PASS | Section 7.6 |
| | Frequency Stability | 2.1055, 27.54 | Fundamental emissions stay within authorized frequency block over the temperature and voltage range as tested | PASS | Section 7.8 |
| RADIATED | Radiated Spurious Emissions (LTE Band 30) | 2.1053, 27.53(a) | Undesirable emissions must meet the limits detailed in 27.53(a) | PASS | Section 7.7 |
| | Radiated Spurious Emissions (LTE Band 7) | 2.1053, 27.53(m) | Undesirable emissions must meet the limits detailed in 27.53(m) | PASS | Section 7.7 |
| | Radiated Spurious Emissions (LTE Band 41) | | | PASS | Section 7.7 |
| | Radiated Spurious Emissions (NR Band n41) | | | PASS | Section 7.7 |

Table 7-1. Summary of Test Results

| | | | | |
|---|--|----------------------------|--|-----------------------------------|
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Notes:

1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2. The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
3. All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
4. All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized was PCTEST EMC Software Tool 1.1.

| | | | |
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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. All ports were tested and only the worst case data were reported.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 4.2

Test Settings

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

Test Setup

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

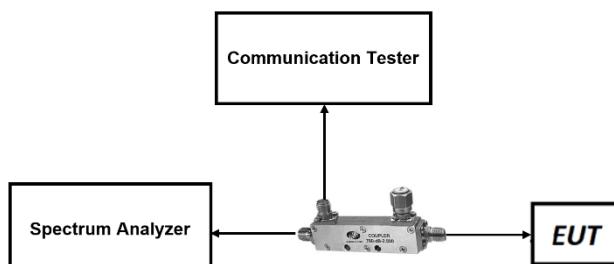


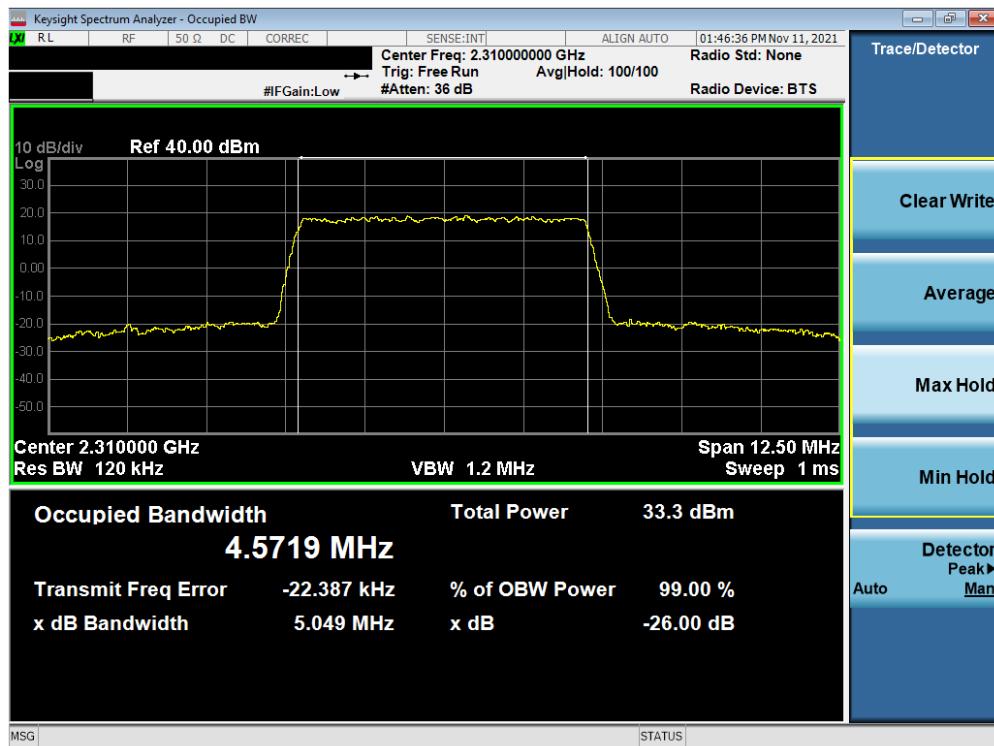
Figure 7-1. Test Instrument & Measurement Setup

Test Notes

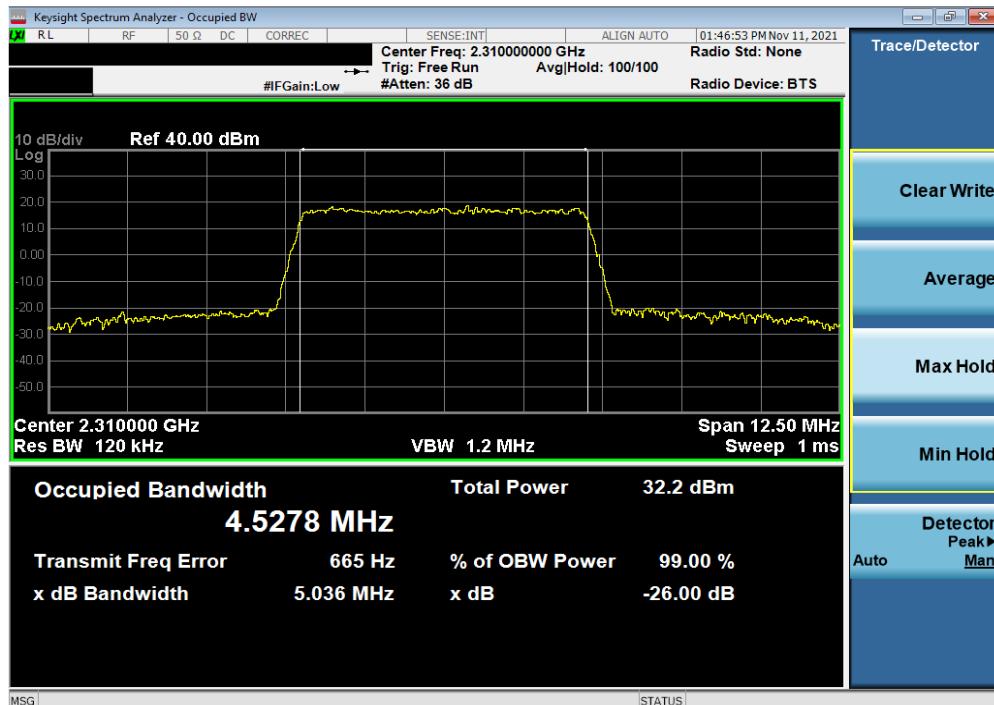
None.

| | | | | |
|--|---|----------------------------|-----------------------------------|-----------------------------------|
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LTE Band 30

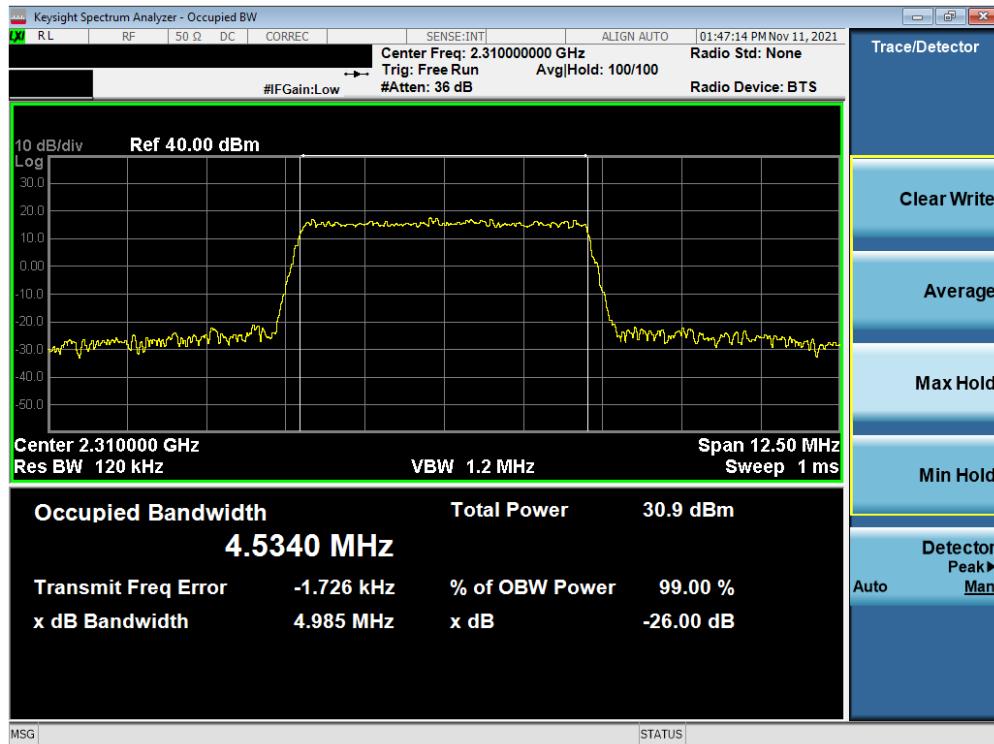


Plot 7-1. Occupied Bandwidth Plot (LTE Band 30 - 5MHz QPSK - Full RB)

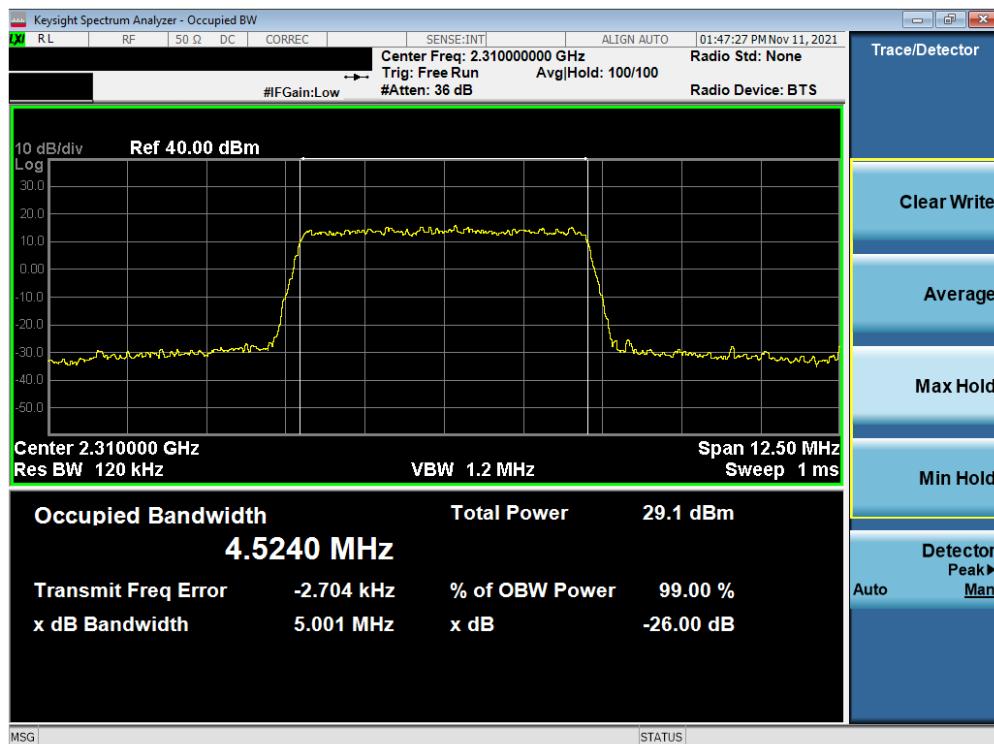


Plot 7-2. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 16-QAM - Full RB)

| | | | | |
|--|---|----------------------------|--|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST [®] Proud to be part of  PART 27 MEASUREMENT REPORT | | | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | Page 17 of 266 |

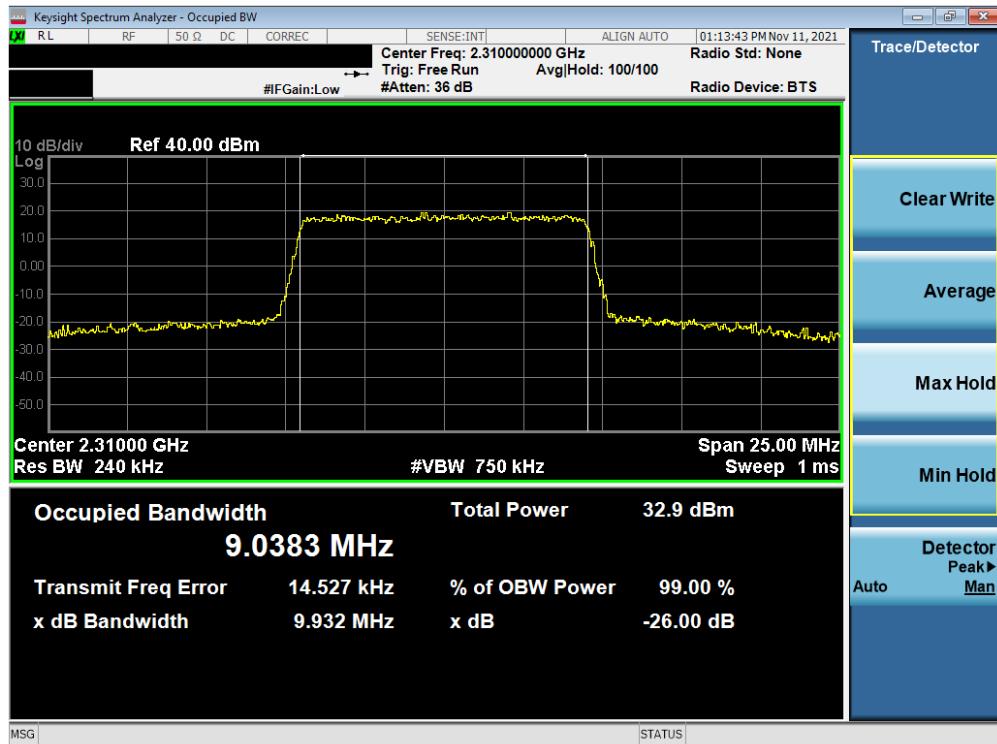


Plot 7-3. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 64-QAM - Full RB)

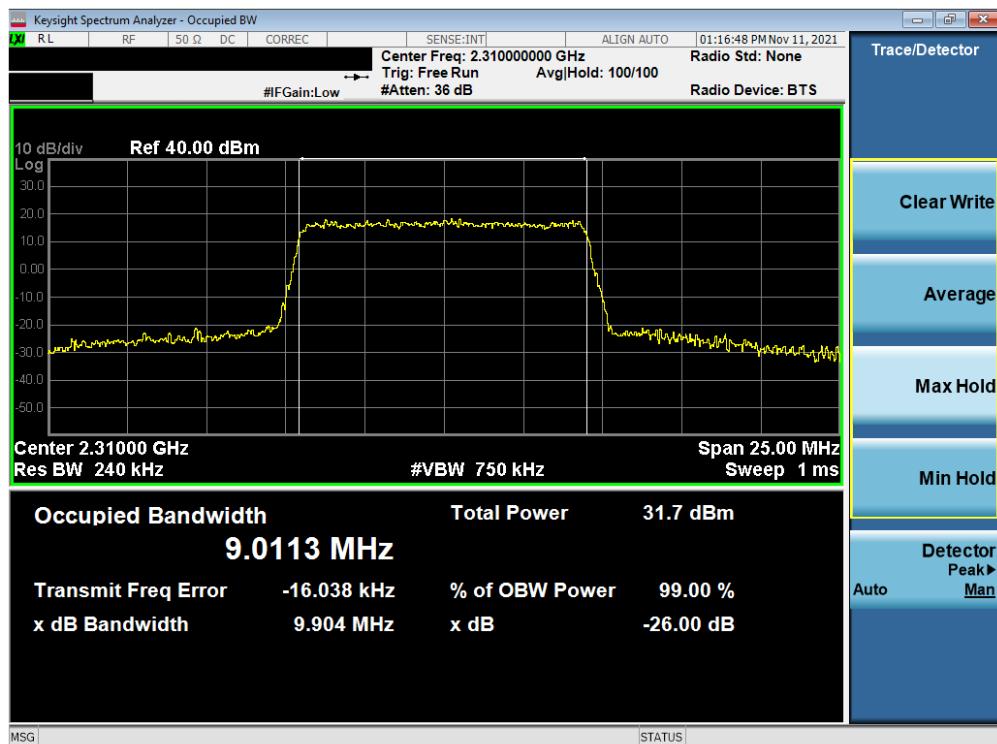


Plot 7-4. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 18 of 266 |

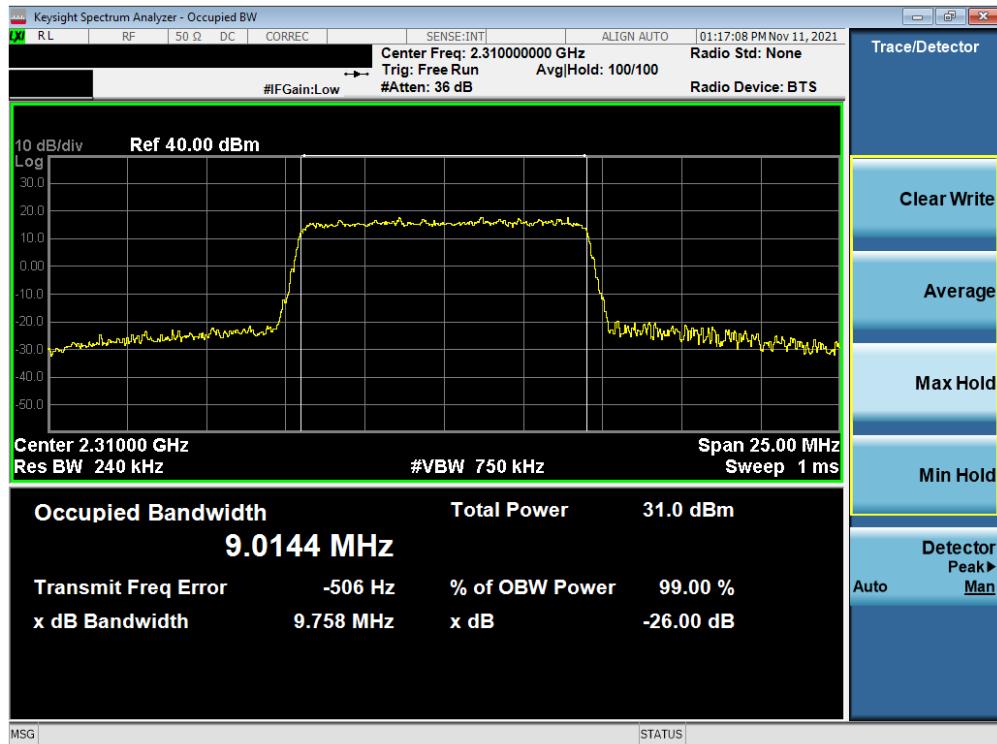


Plot 7-5. Occupied Bandwidth Plot (LTE Band 30 - 10MHz QPSK - Full RB)

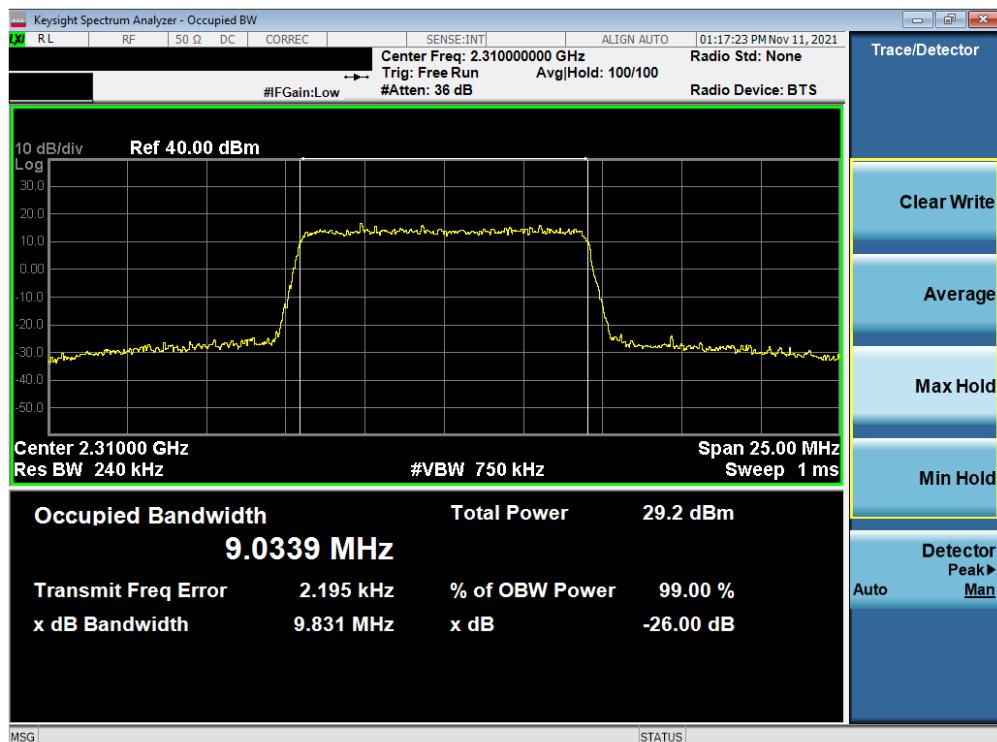


Plot 7-6. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 16-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |



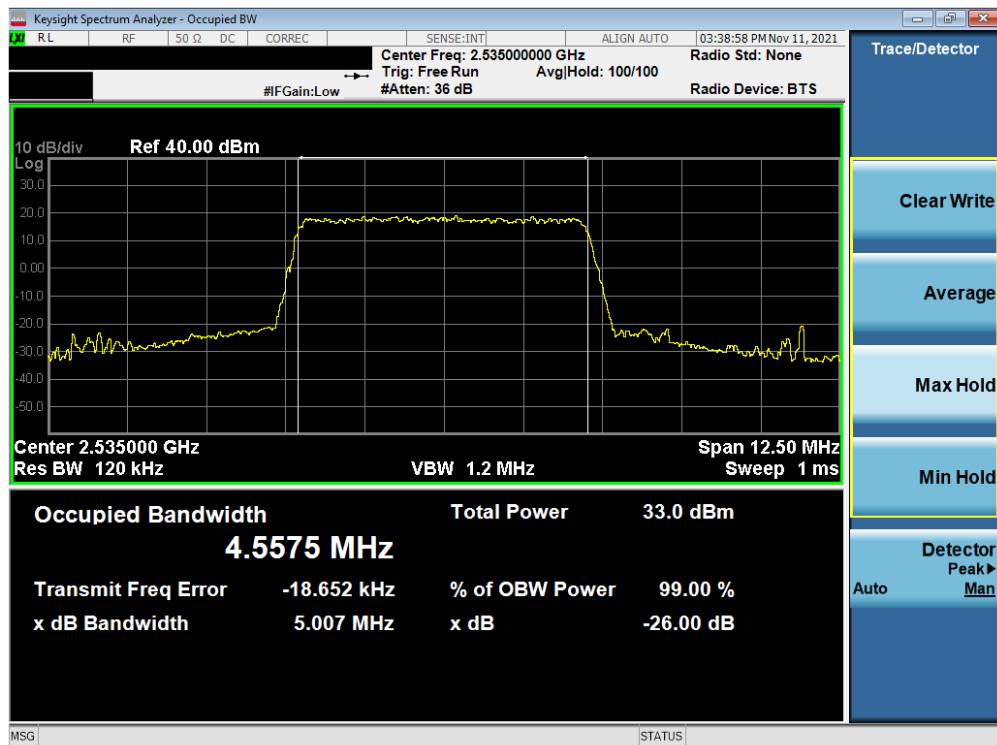
Plot 7-7. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 64-QAM - Full RB)



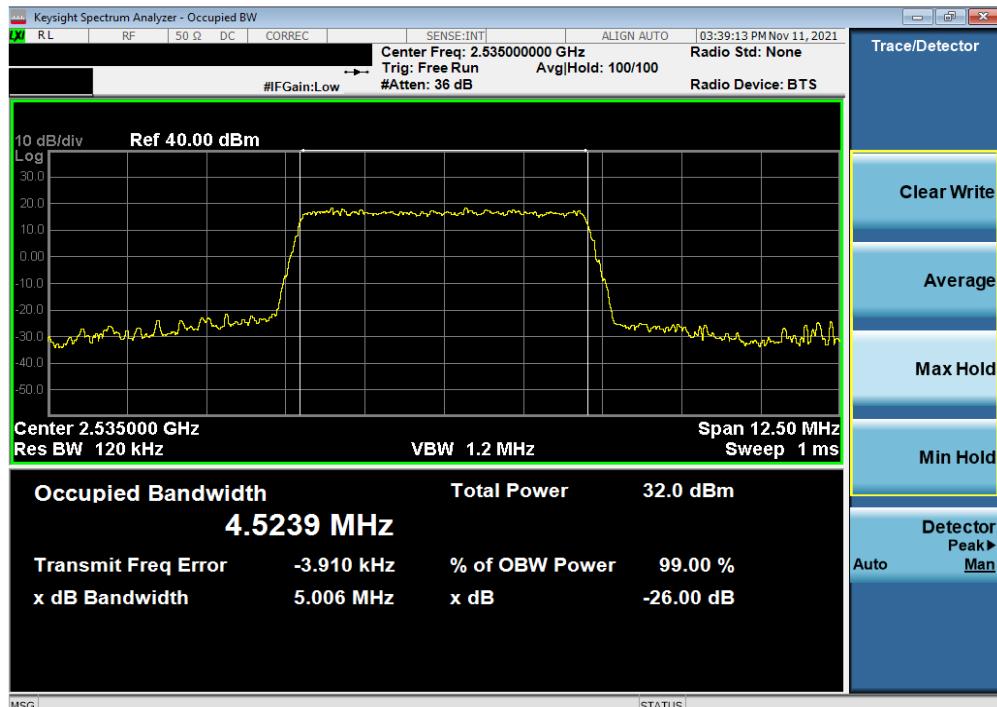
Plot 7-8. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 20 of 266 |

LTE Band 7

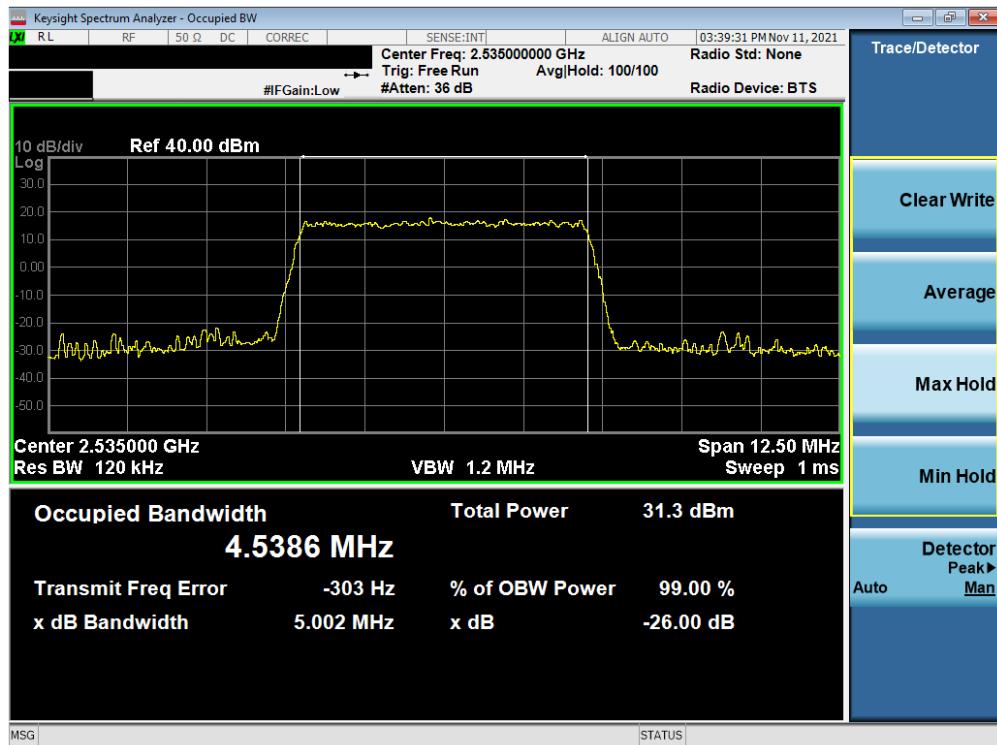


Plot 7-9. Occupied Bandwidth Plot (LTE Band 7 - 5MHz QPSK - Full RB)

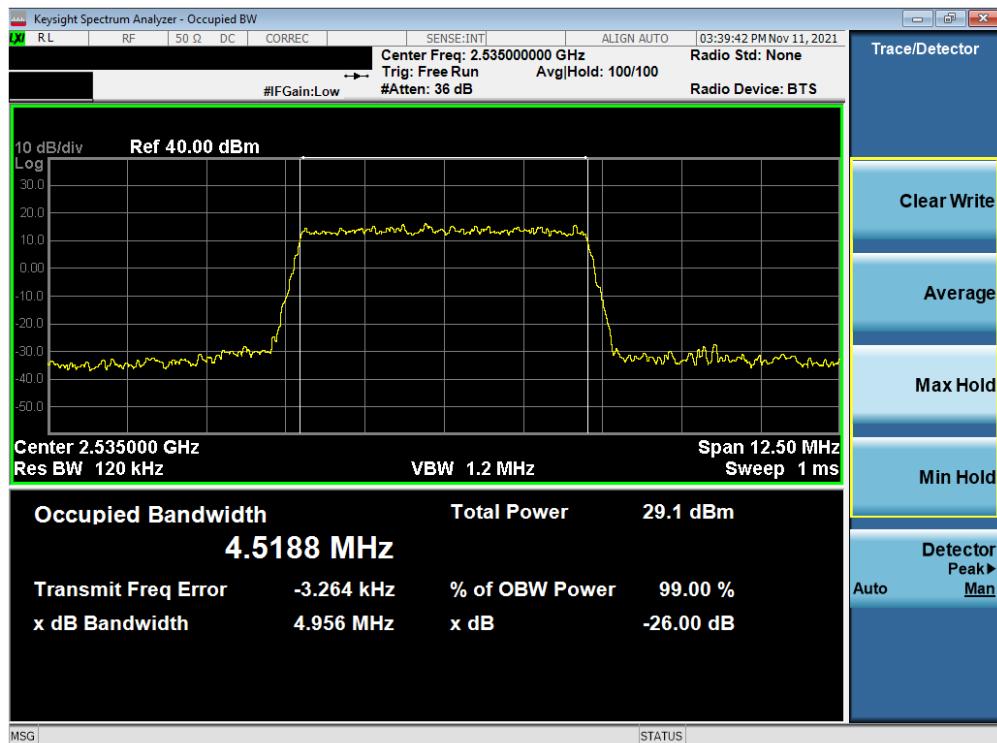


Plot 7-10. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 16-QAM - Full RB)

| | | | | |
|---|--|----------------------------|--|-----------------------------------|
| FCC ID: BCGA2589 |  PART 27 MEASUREMENT REPORT | | | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | Page 21 of 266 |

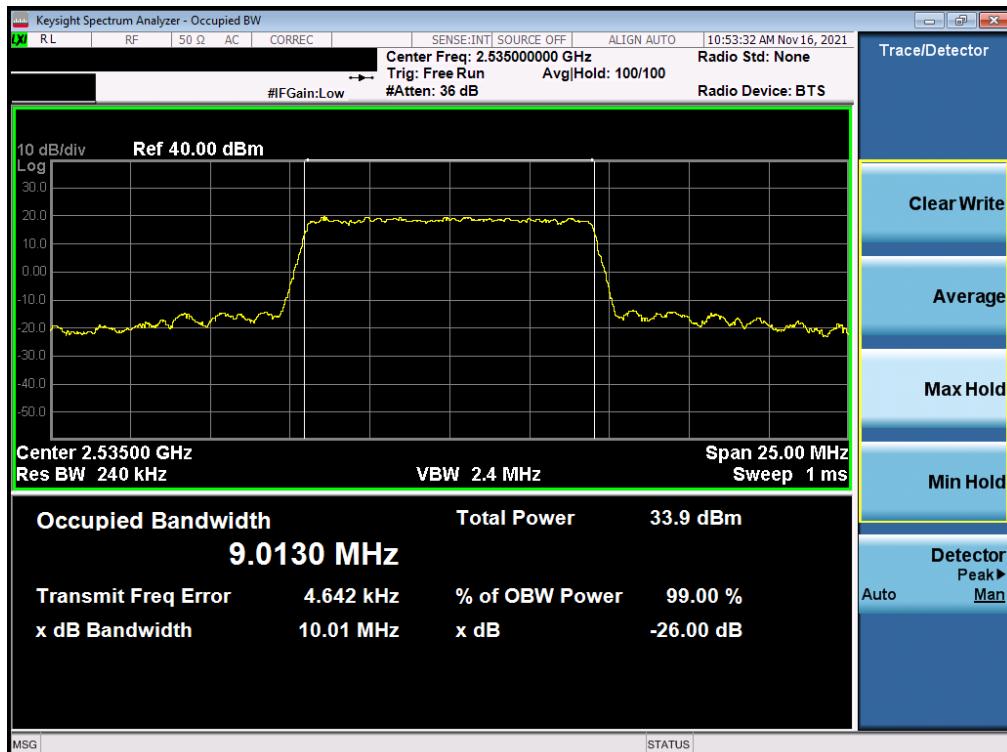


Plot 7-11. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 64-QAM - Full RB)

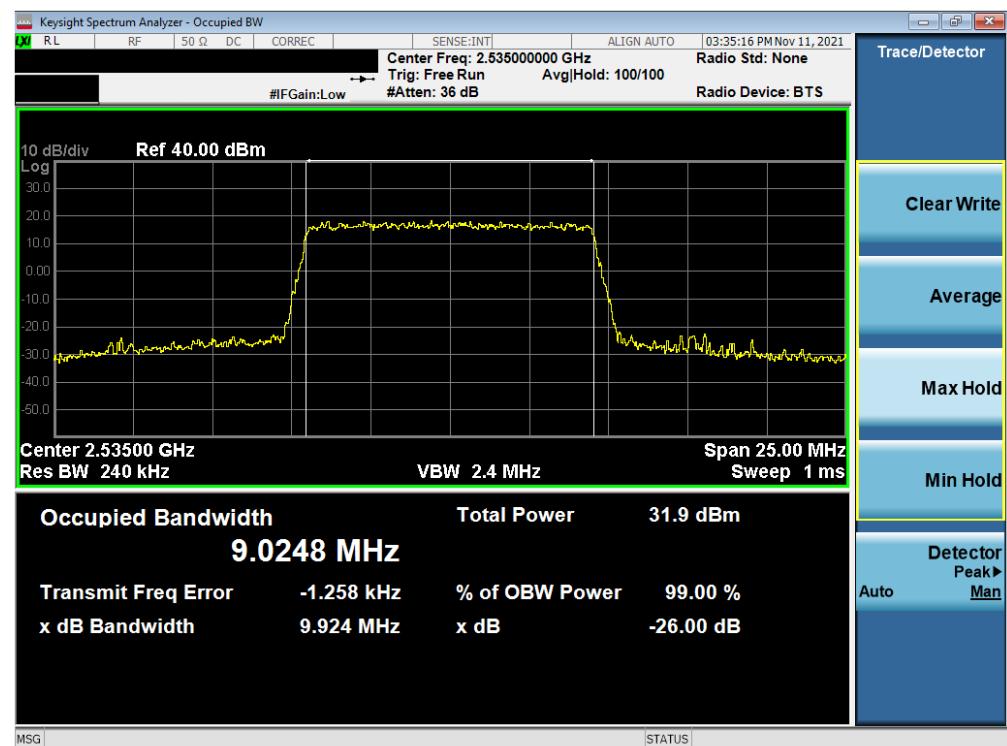


Plot 7-12. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 22 of 266 |

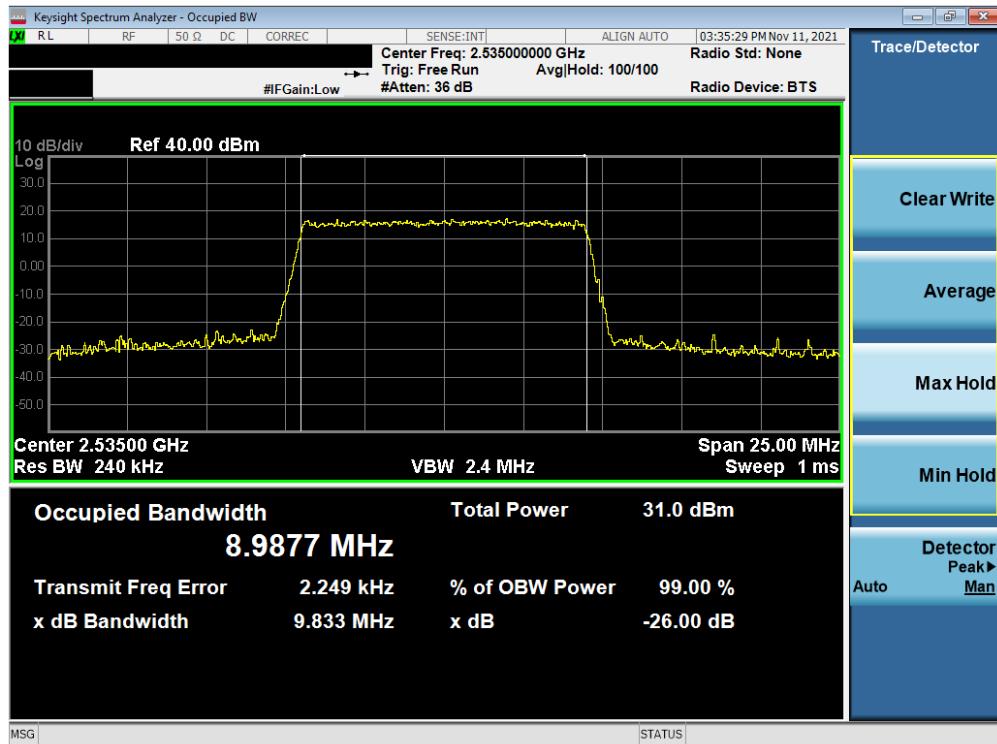


Plot 7-13. Occupied Bandwidth Plot (LTE Band 7 - 10MHz QPSK - Full RB)

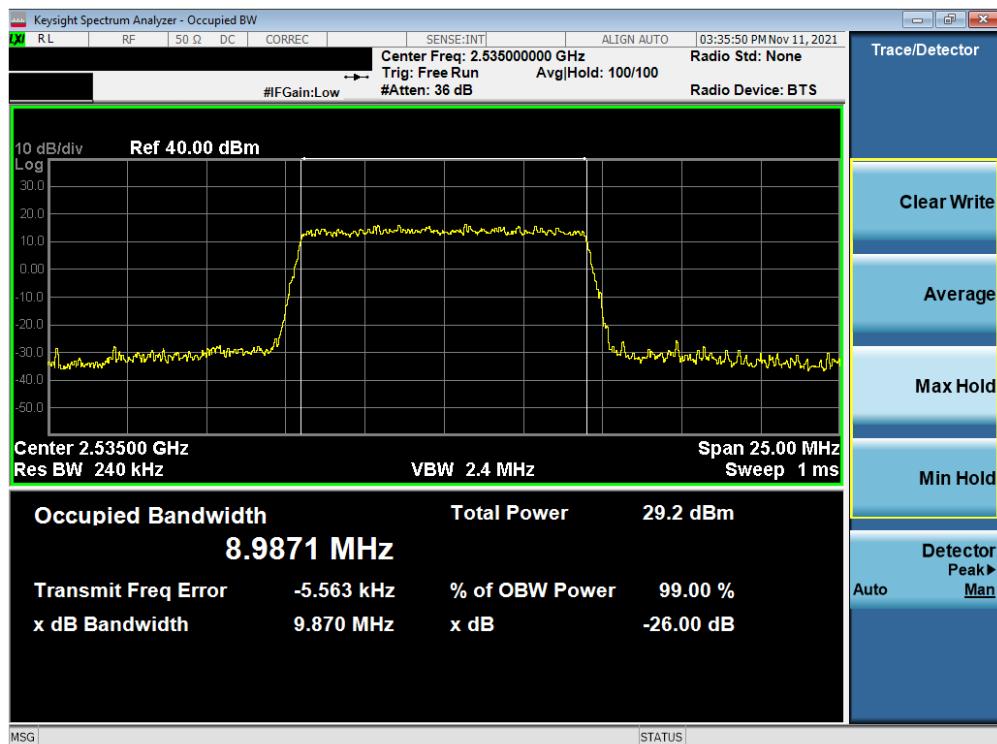


Plot 7-14. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 16-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 23 of 266 |

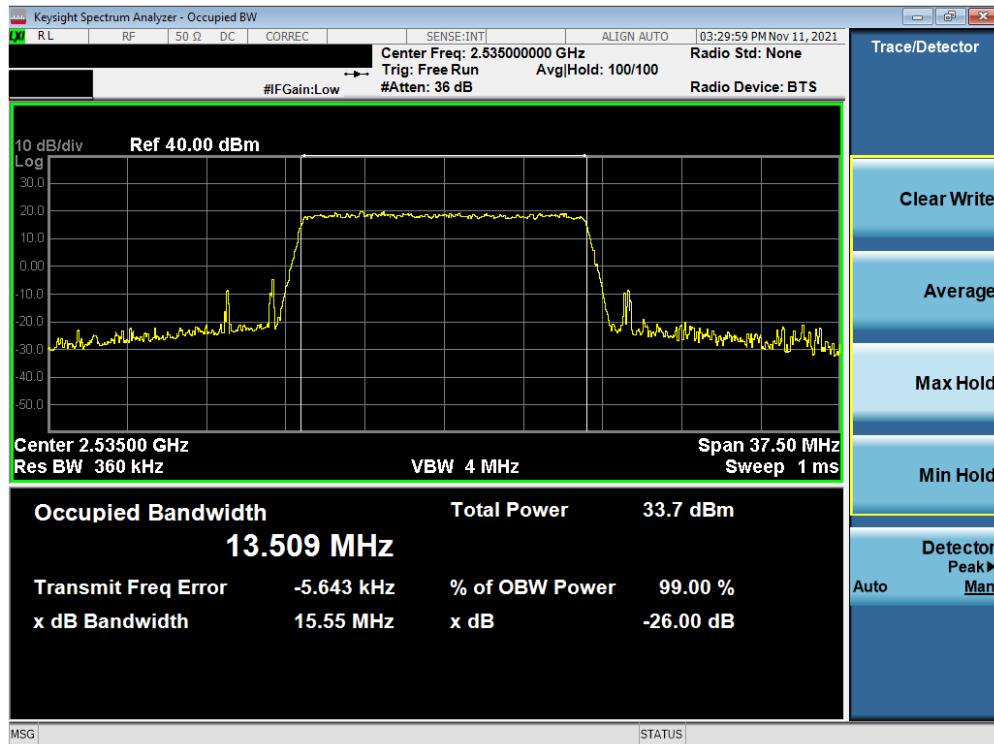


Plot 7-15. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 64-QAM - Full RB)

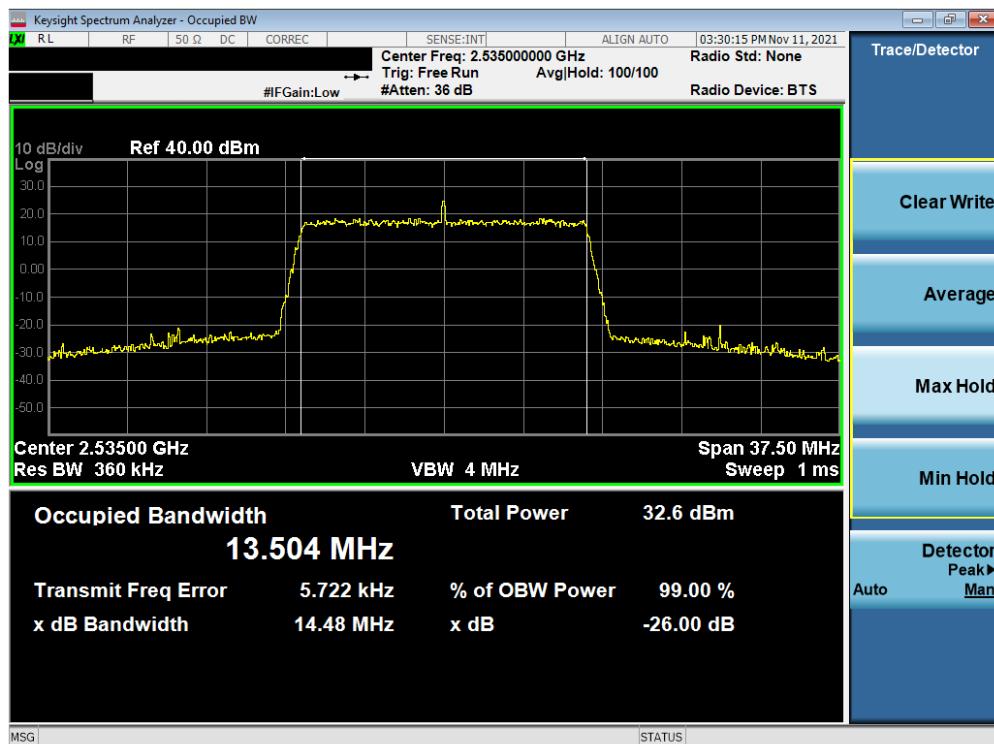


Plot 7-16. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 24 of 266 |

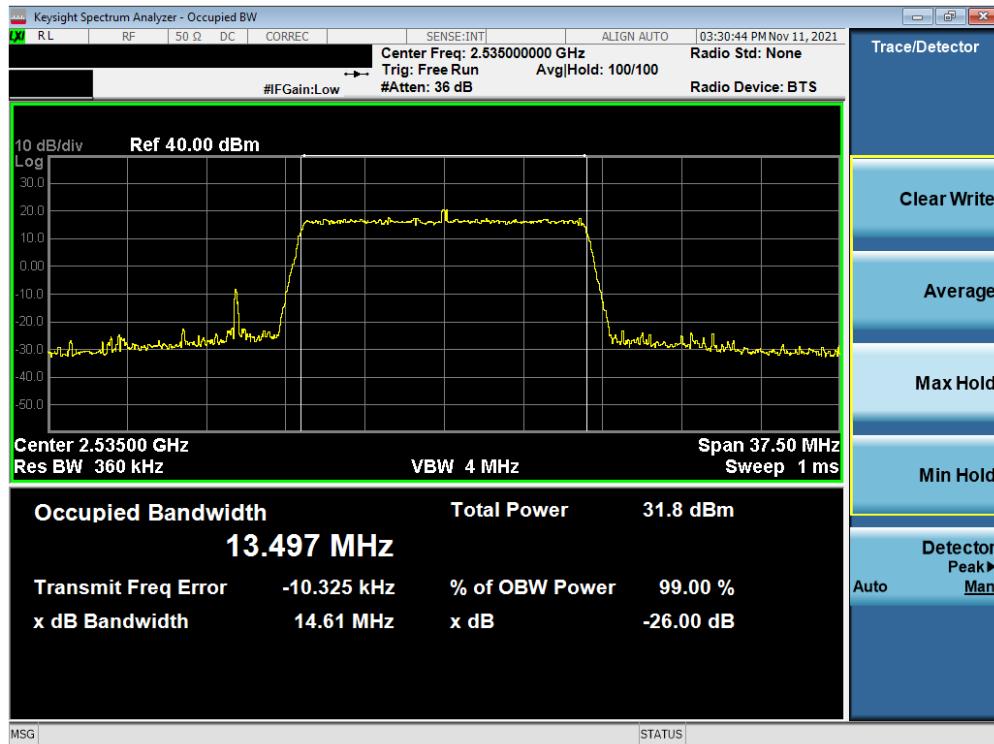


Plot 7-17. Occupied Bandwidth Plot (LTE Band 7 - 15MHz QPSK - Full RB)

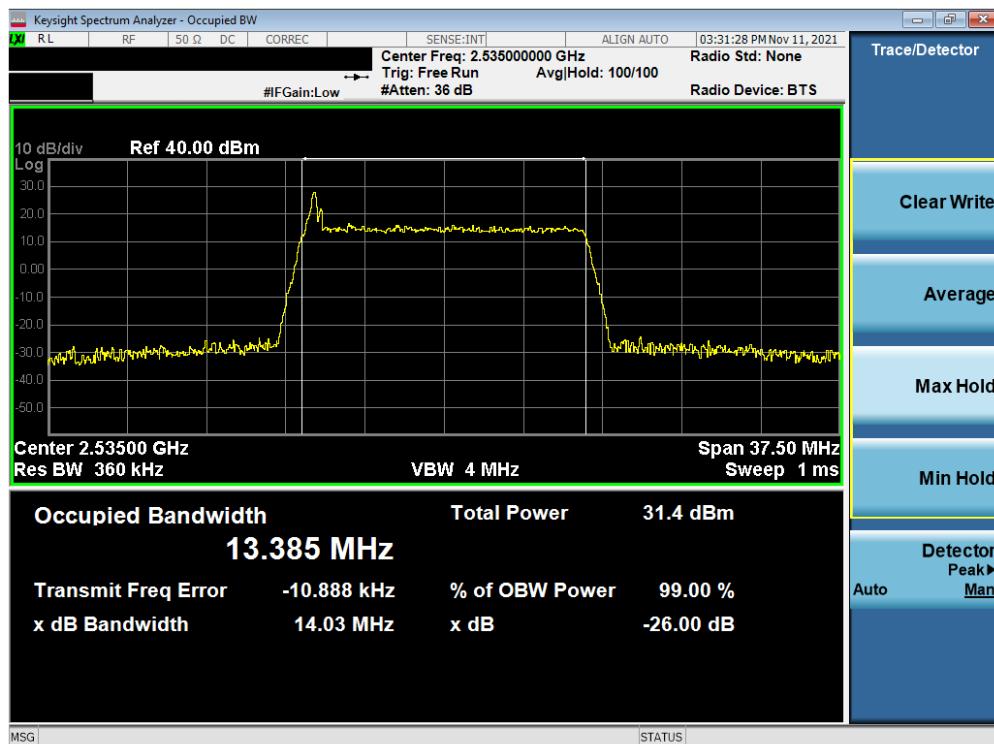


Plot 7-18. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 16-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 25 of 266 |



Plot 7-19. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 64-QAM - Full RB)

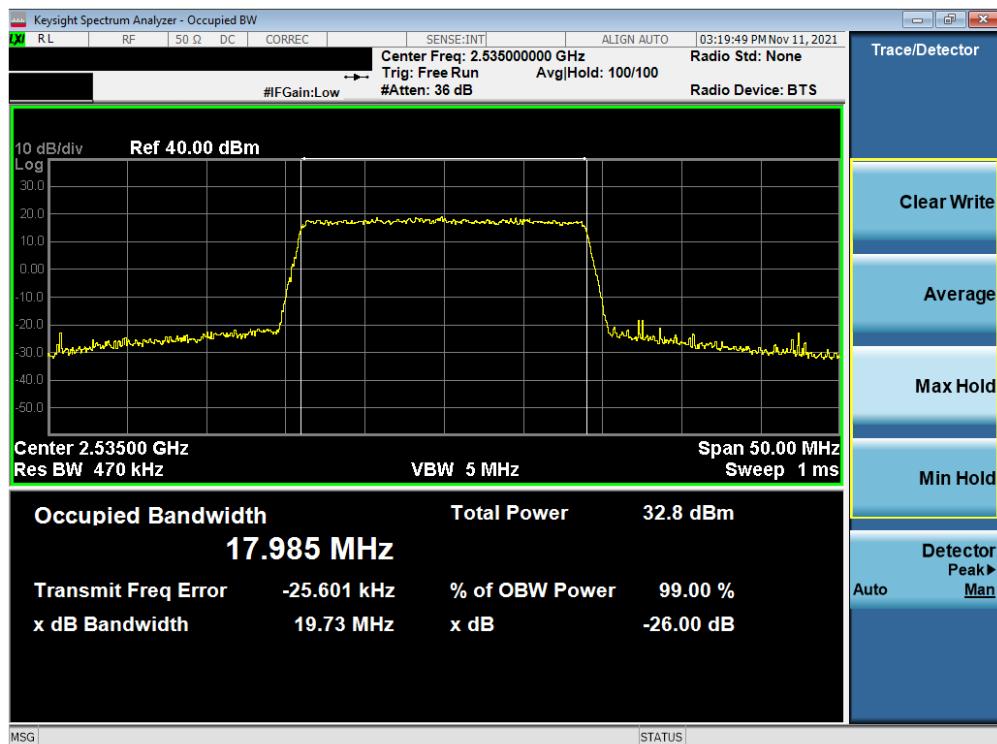


Plot 7-20. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 26 of 266 |

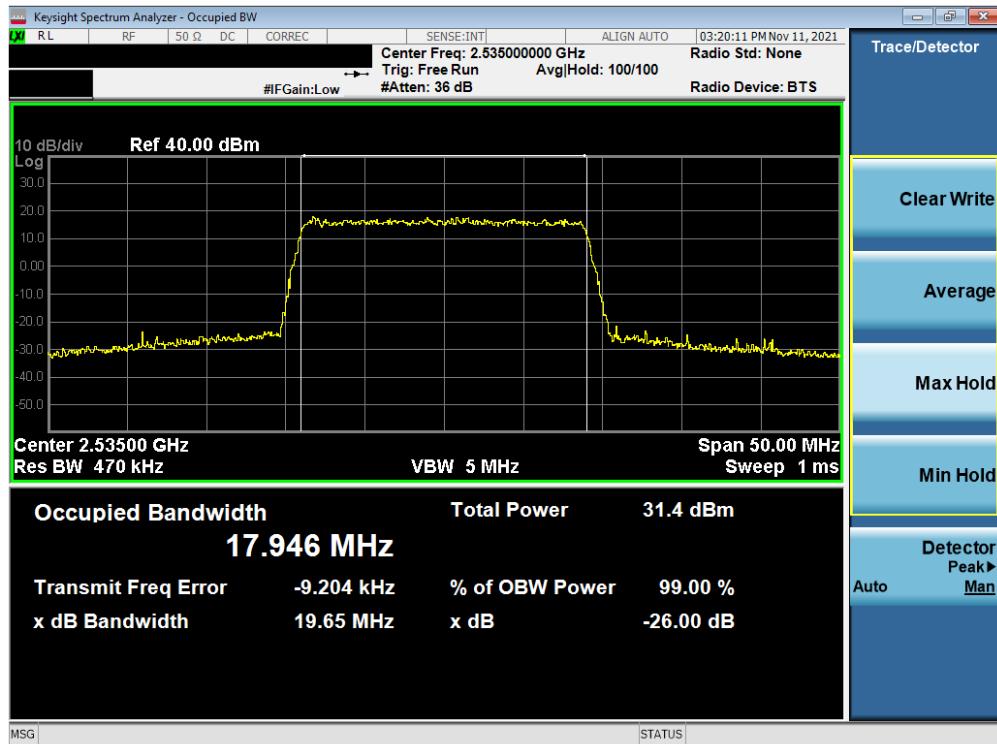


Plot 7-21. Occupied Bandwidth Plot (LTE Band 7 - 20MHz QPSK - Full RB)

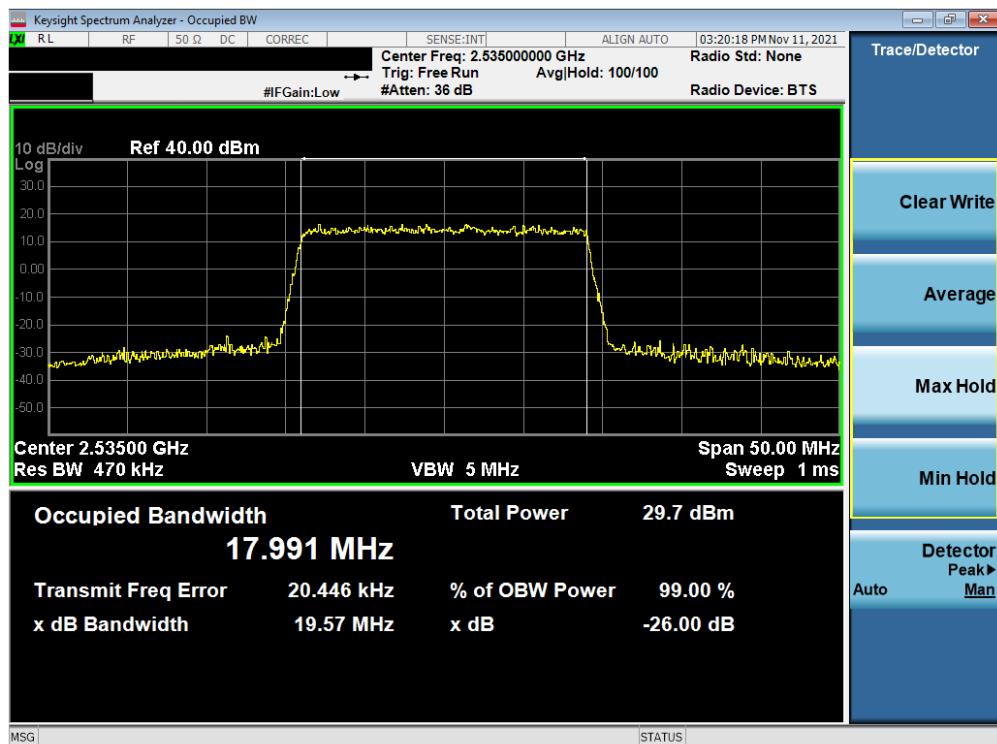


Plot 7-22. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 16-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 27 of 266 |



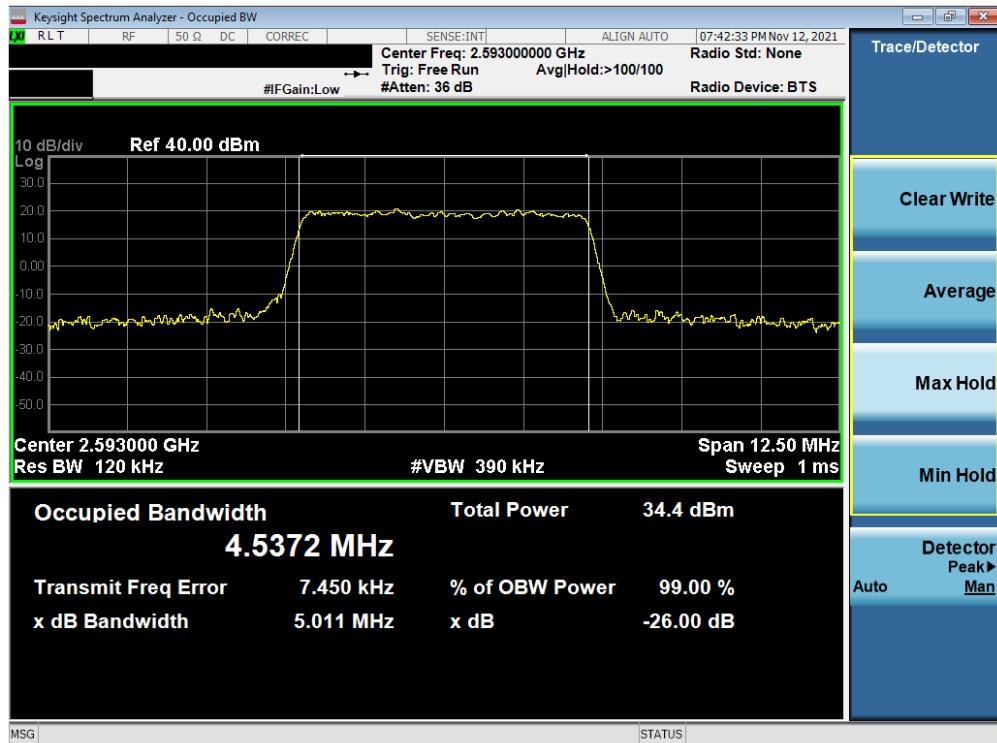
Plot 7-23. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 64-QAM - Full RB)



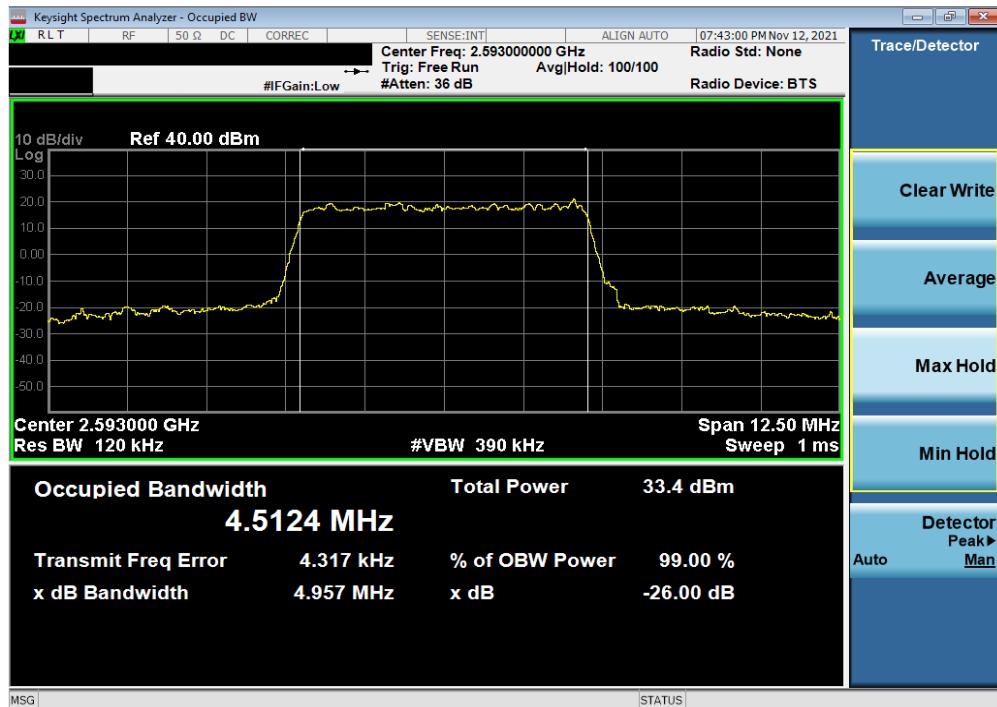
Plot 7-24. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST [®] Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 28 of 266 |

LTE Band 41

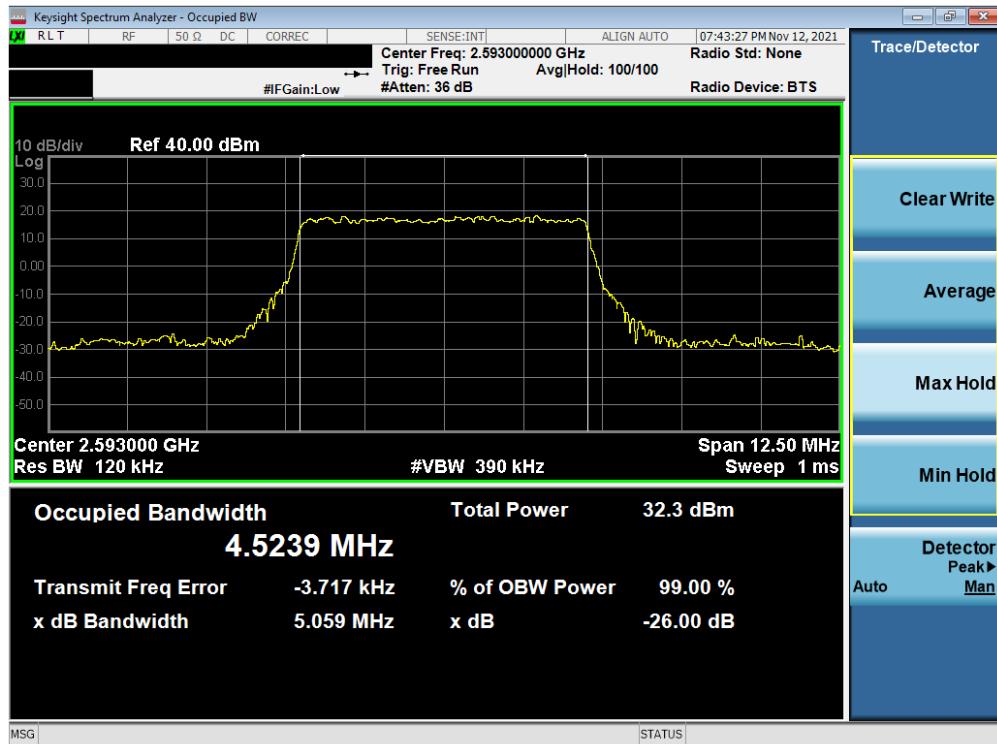


Plot 7-25. Occupied Bandwidth Plot (LTE Band 41 - 5MHz QPSK - Full RB)

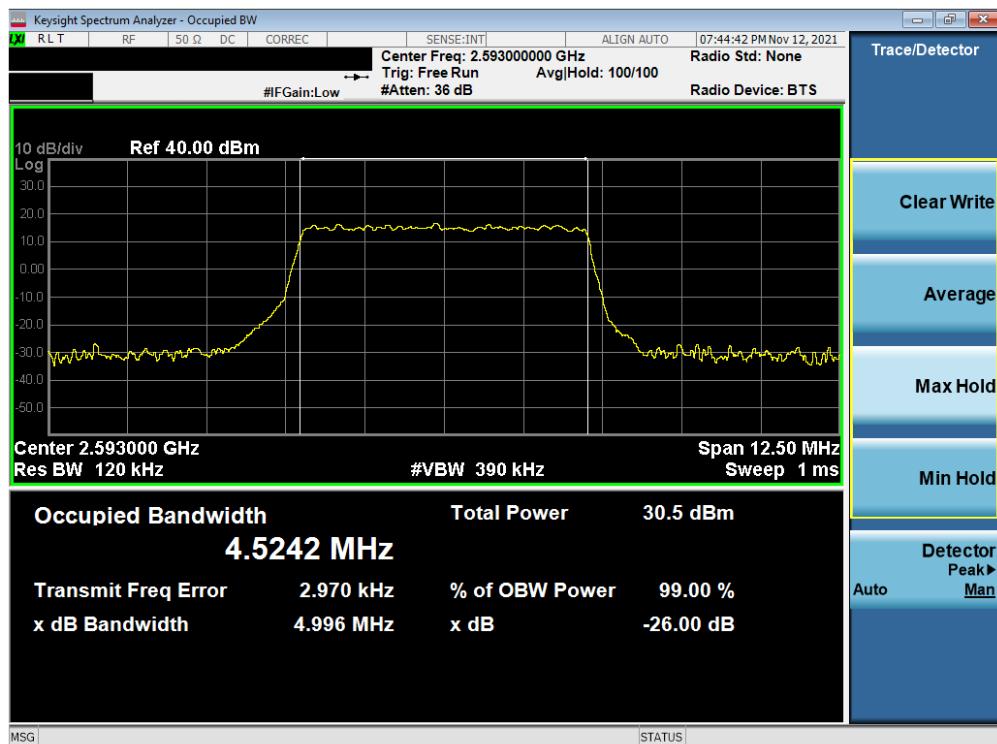


Plot 7-26. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 16-QAM - Full RB)

| | | | |
|---|--|-----------------------------------|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST Proud to be part of | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | Page 29 of 266 |

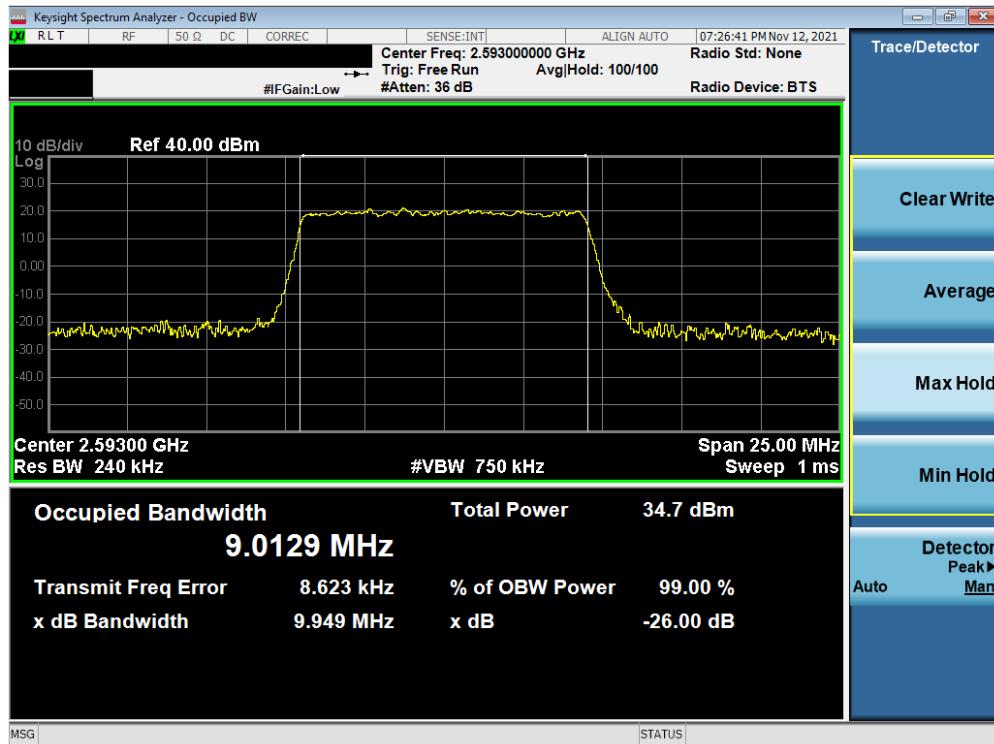


Plot 7-27. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 64-QAM - Full RB)

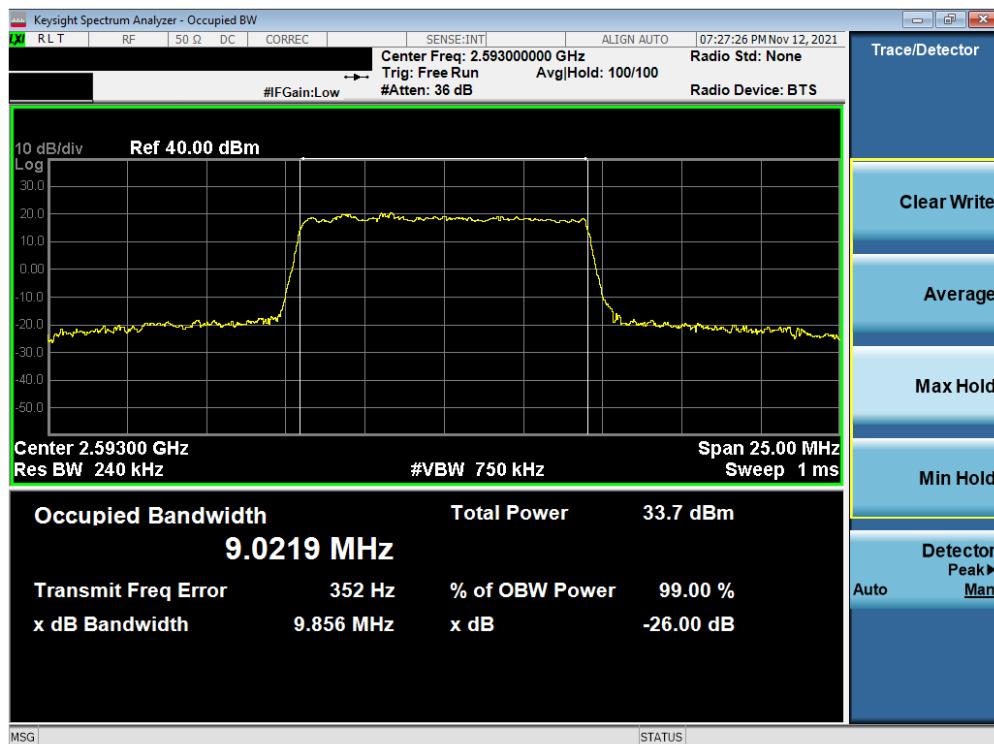


Plot 7-28. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 30 of 266 |

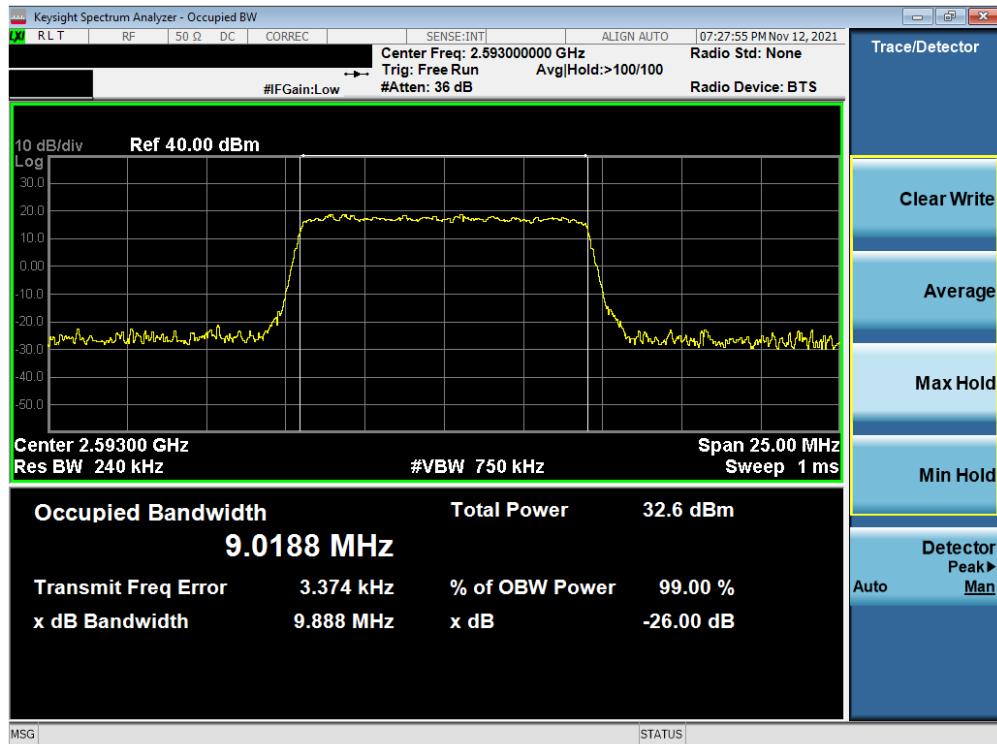


Plot 7-29. Occupied Bandwidth Plot (LTE Band 41 - 10MHz QPSK - Full RB)

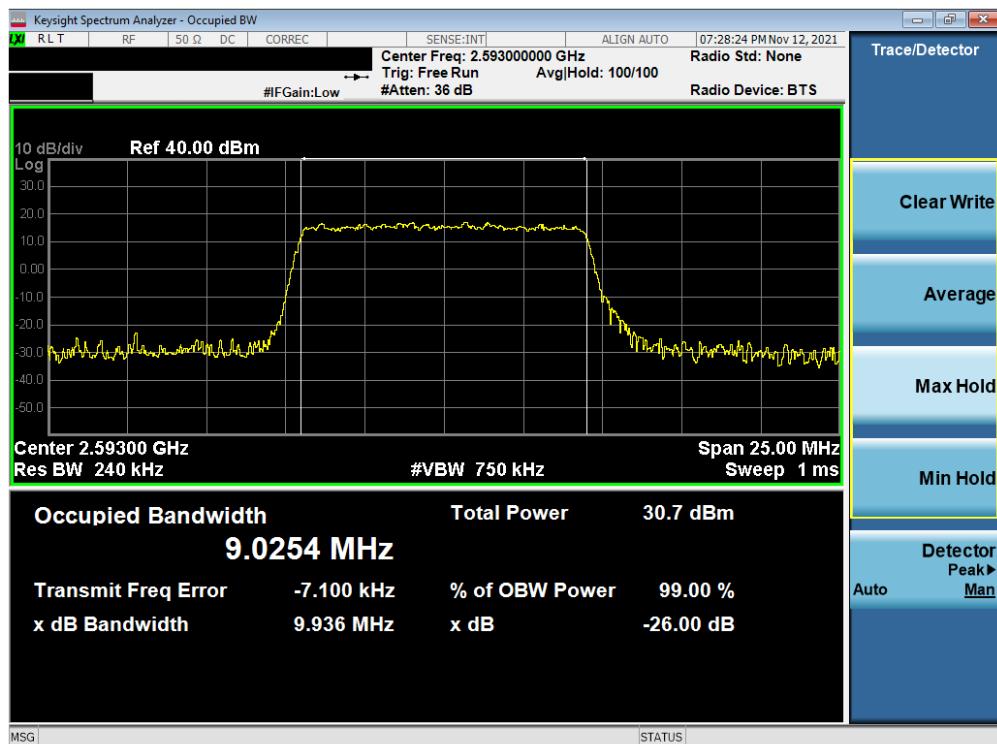


Plot 7-30. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 16-QAM - Full RB)

| | | | | |
|--|---|----------------------------|--|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST [®] Proud to be part of  PART 27 MEASUREMENT REPORT | | | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | Page 31 of 266 |



Plot 7-31. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 64-QAM - Full RB)

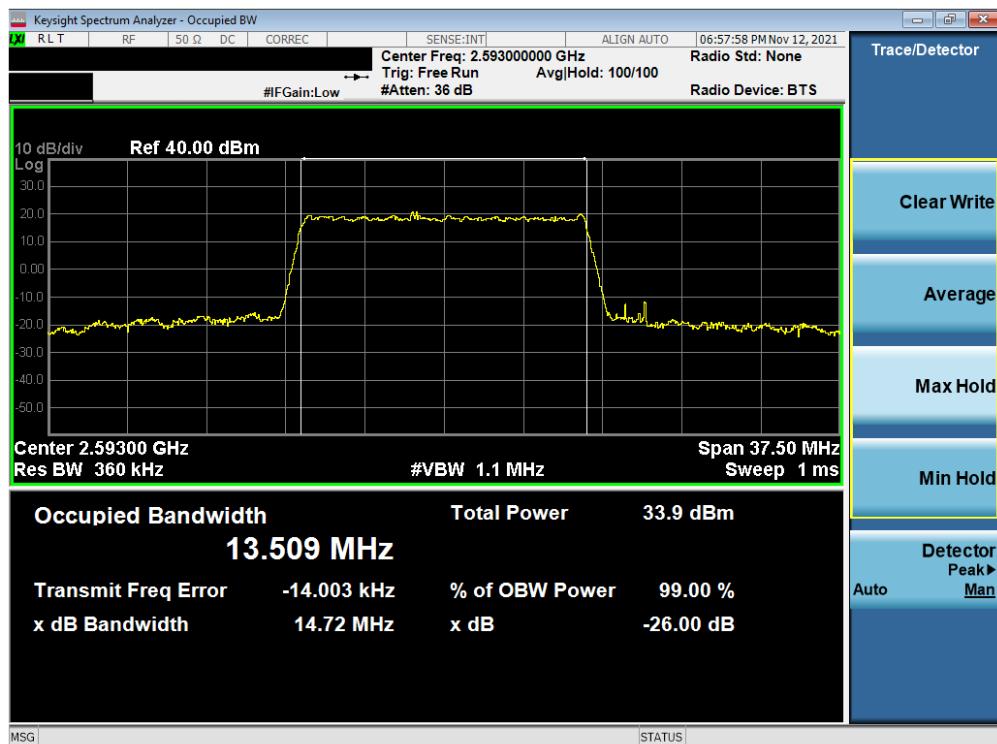


Plot 7-32. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |

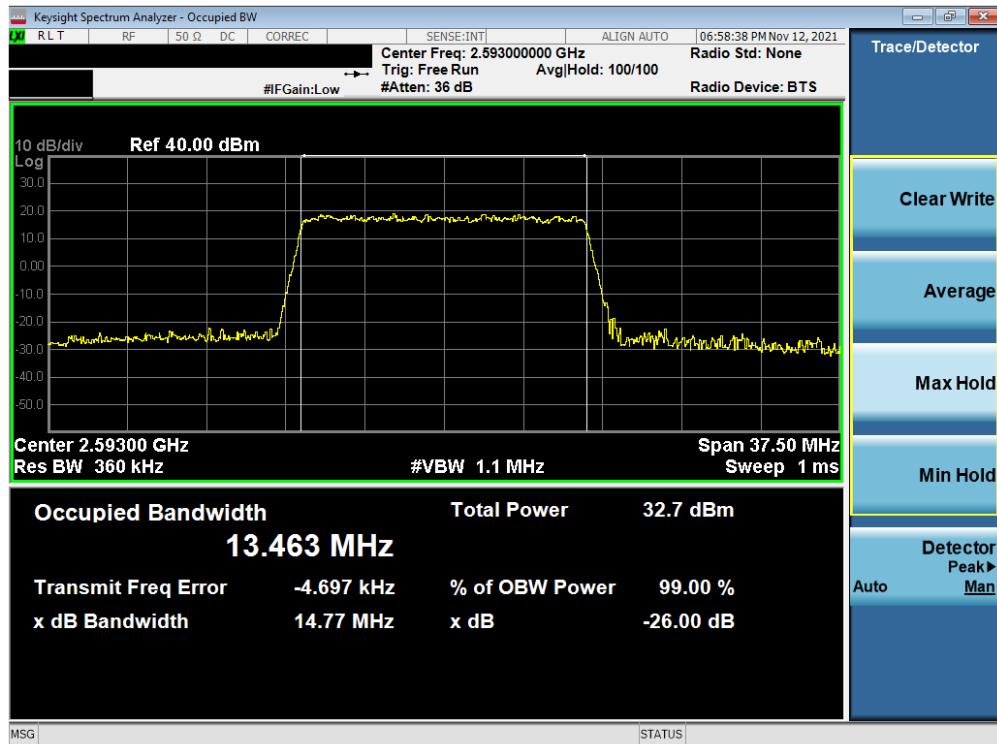


Plot 7-33. Occupied Bandwidth Plot (LTE Band 41 - 15MHz QPSK - Full RB)

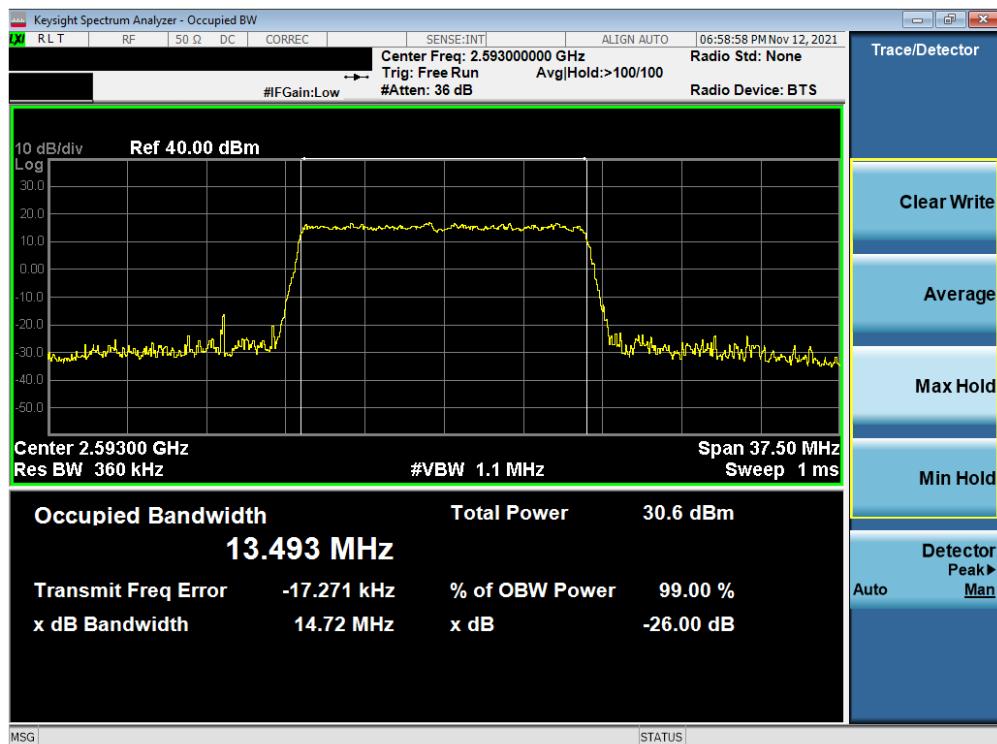


Plot 7-34. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 16-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |

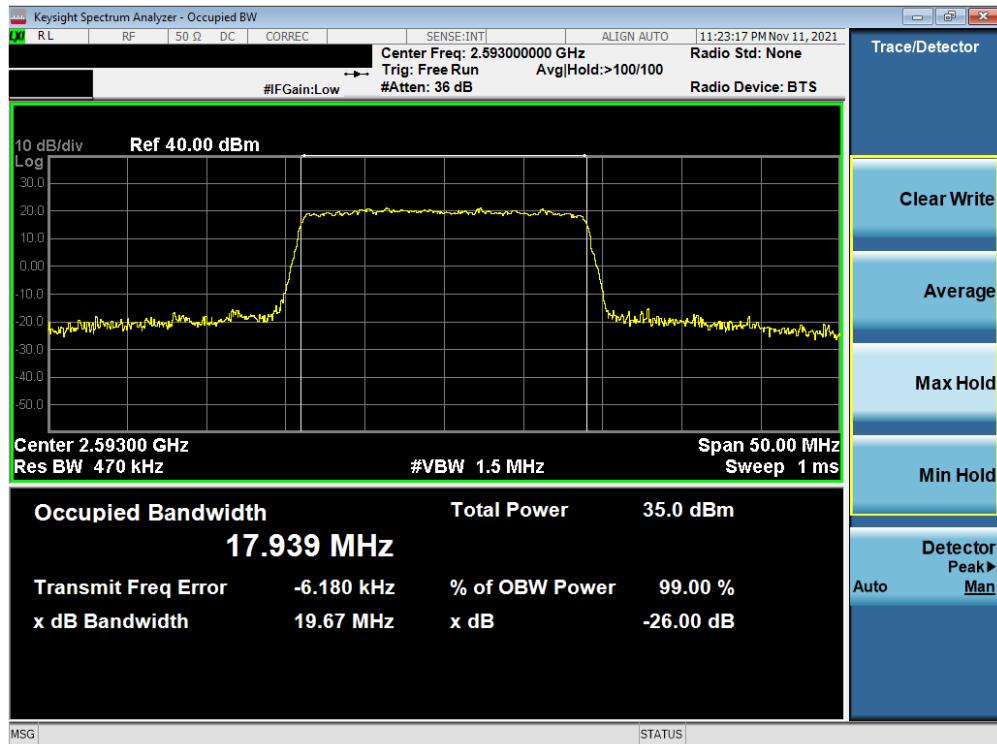


Plot 7-35. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 64-QAM - Full RB)



Plot 7-36. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |



Plot 7-37. Occupied Bandwidth Plot (LTE Band 41 - 20MHz QPSK - Full RB)

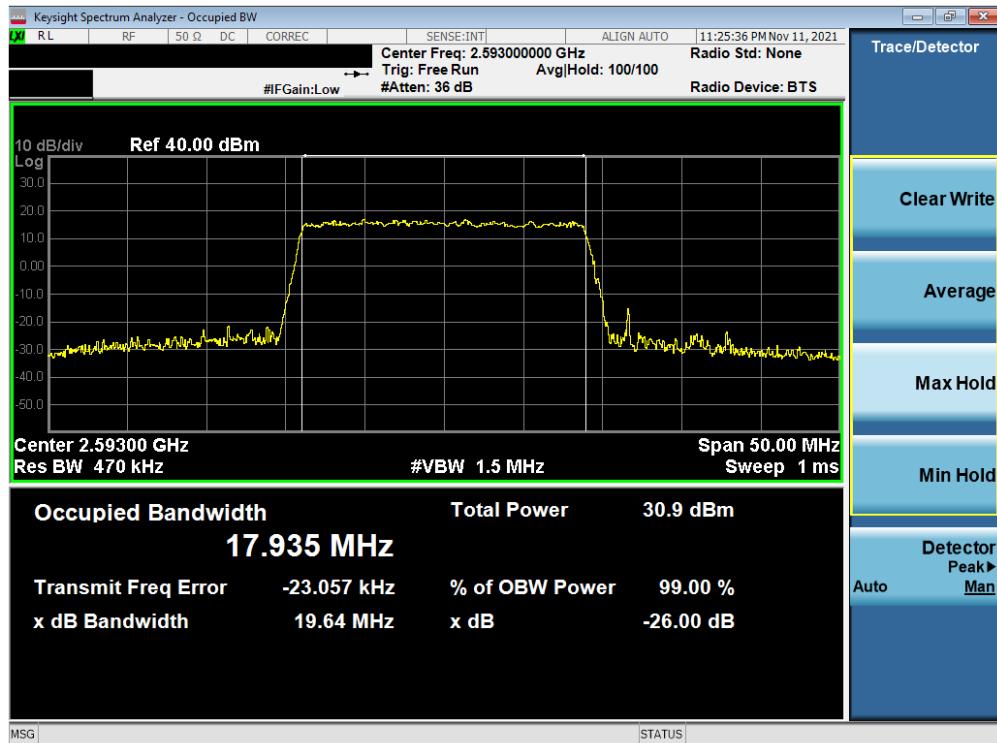


Plot 7-38. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 16-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |



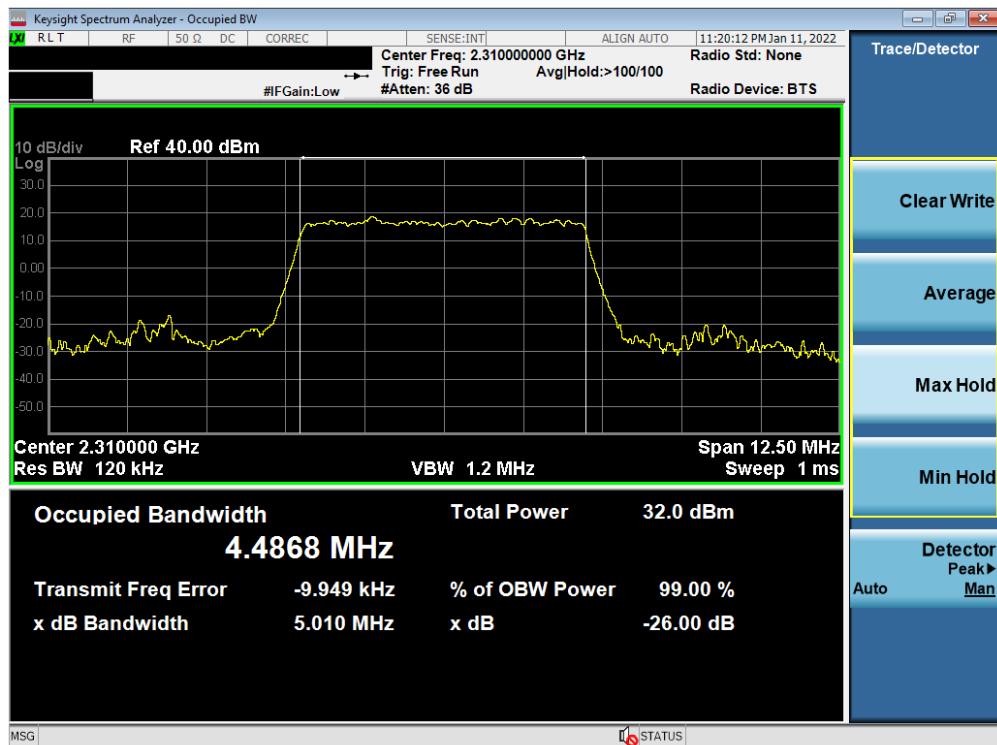
Plot 7-39. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 64-QAM - Full RB)



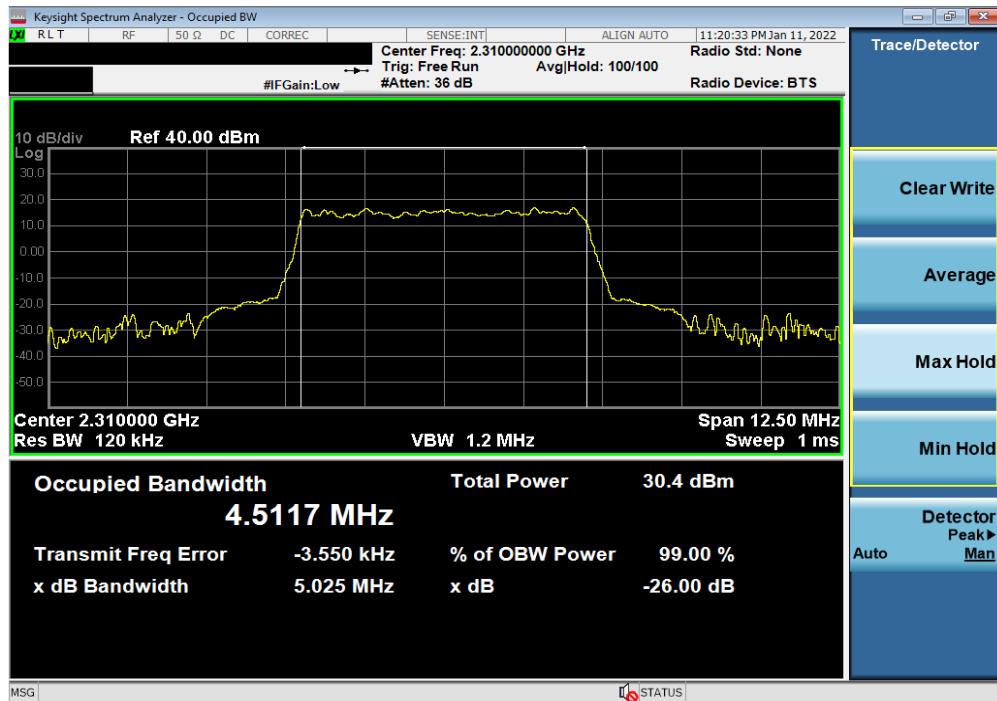
Plot 7-40. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 36 of 266 |

NR Band n30

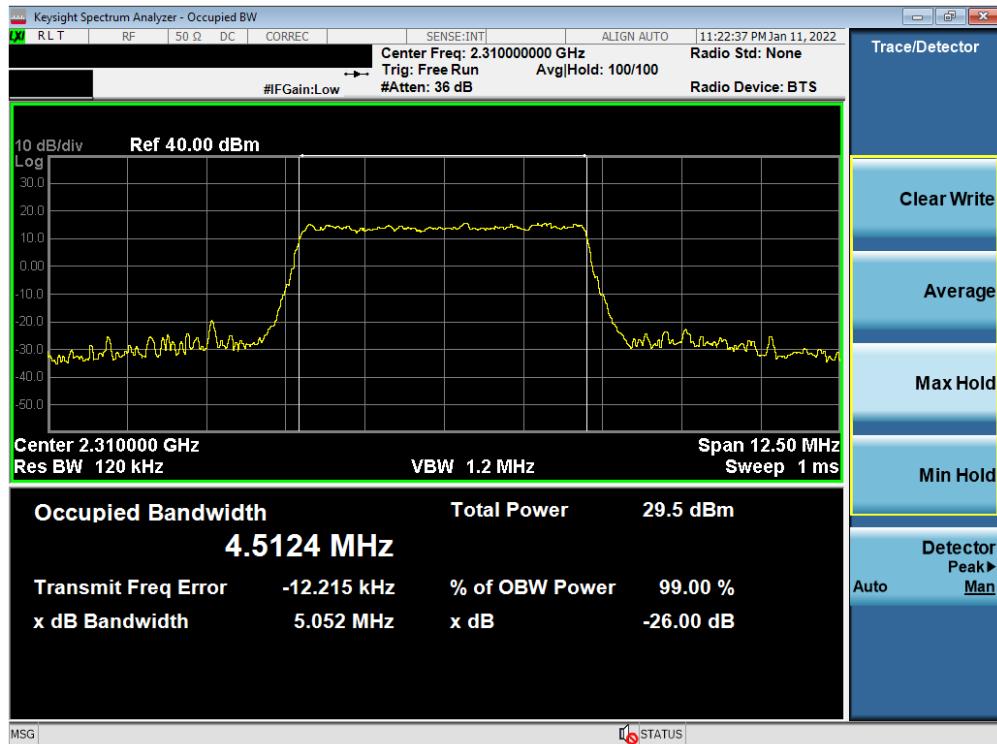


Plot 7-41. Occupied Bandwidth Plot (NR Band n30 - 5MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

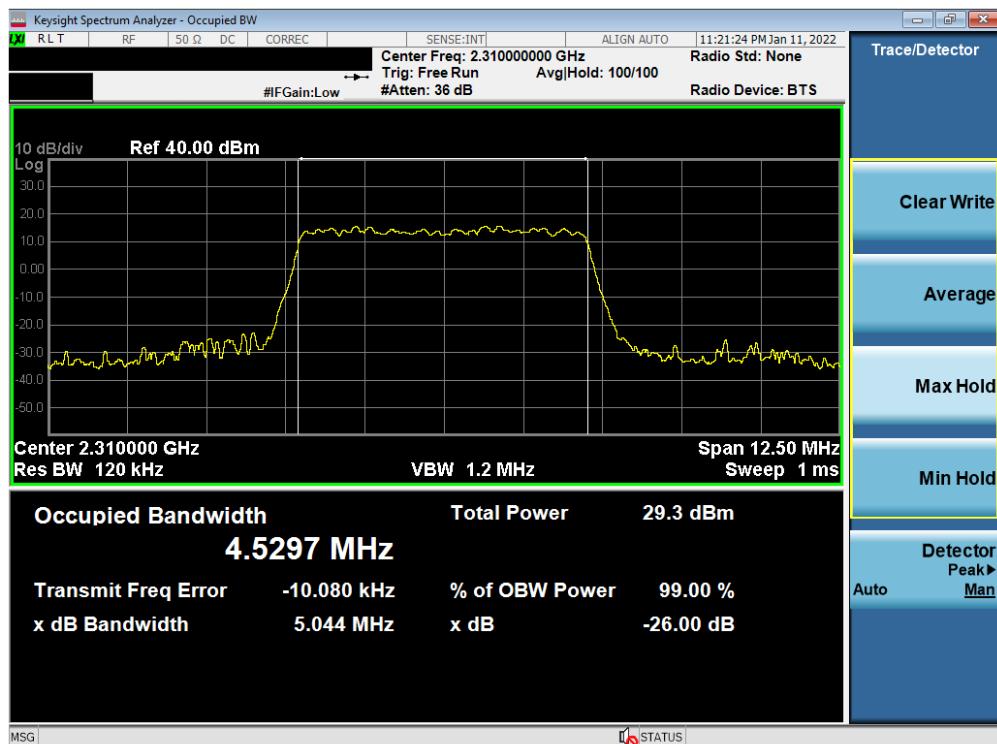


Plot 7-42. Occupied Bandwidth Plot (NR Band n30 - 5MHz DFT-s-OFDM QPSK - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST® Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 37 of 266 |

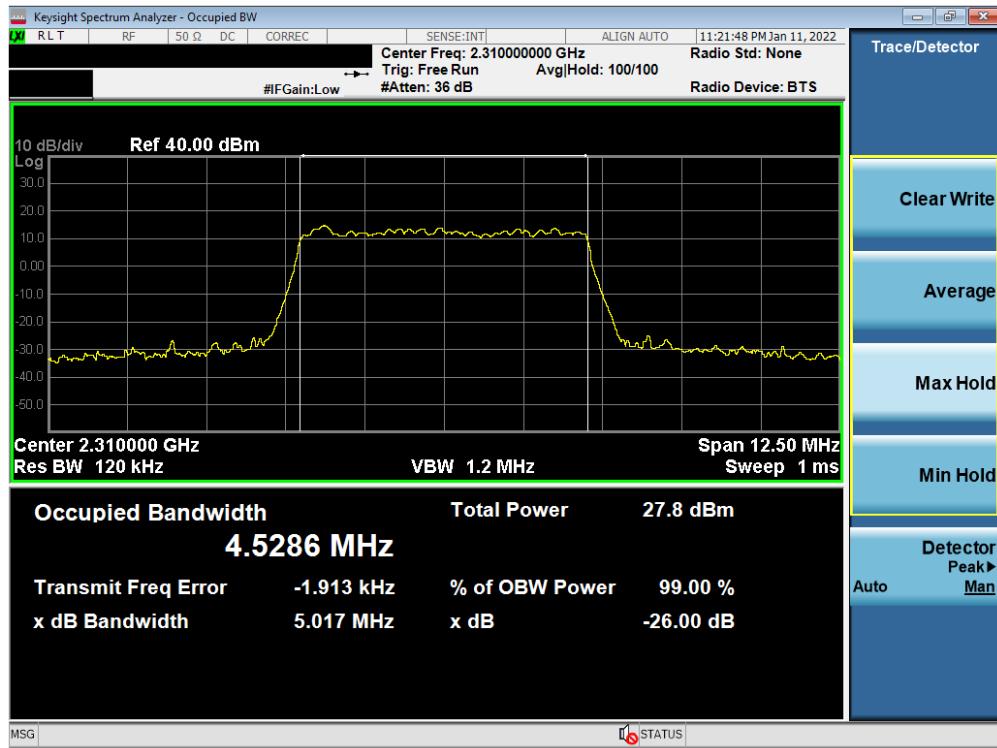


Plot 7-43. Occupied Bandwidth Plot (NR Band n30 - 5MHz CP-OFDM 16-QAM - Full RB)

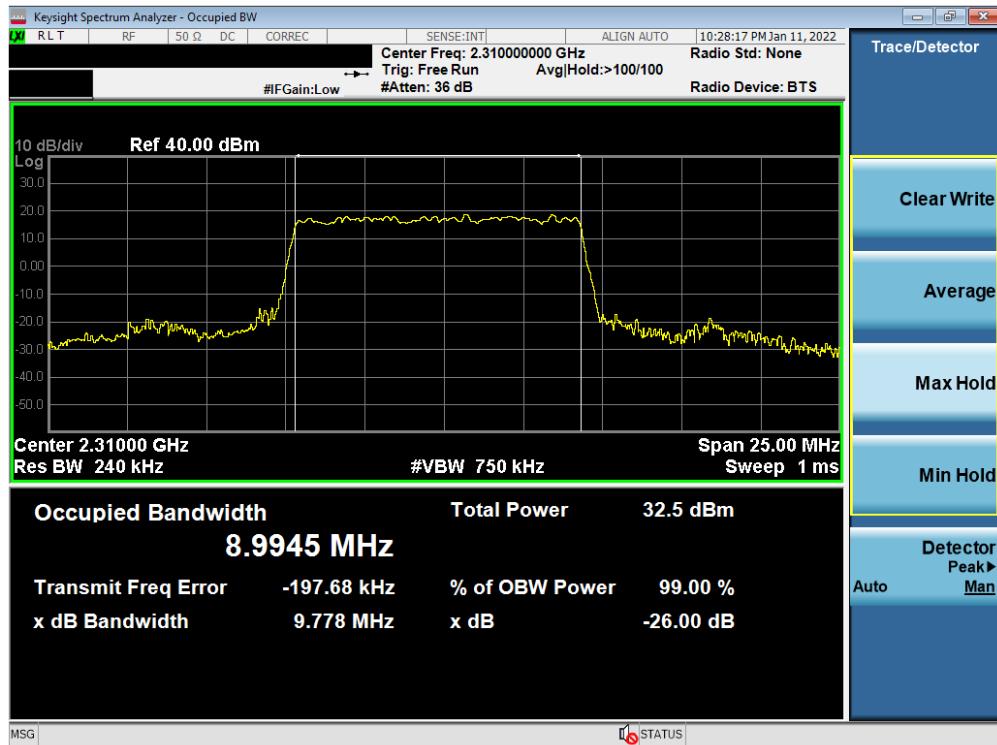


Plot 7-44. Occupied Bandwidth Plot (NR Band n30 - 5MHz DFT-s-OFDM 64-QAM - Full RB)

| | | | | |
|---|--|----------------------------|--|-----------------------------------|
| FCC ID: BCGA2589 |  PART 27 MEASUREMENT REPORT | | | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | Page 38 of 266 |

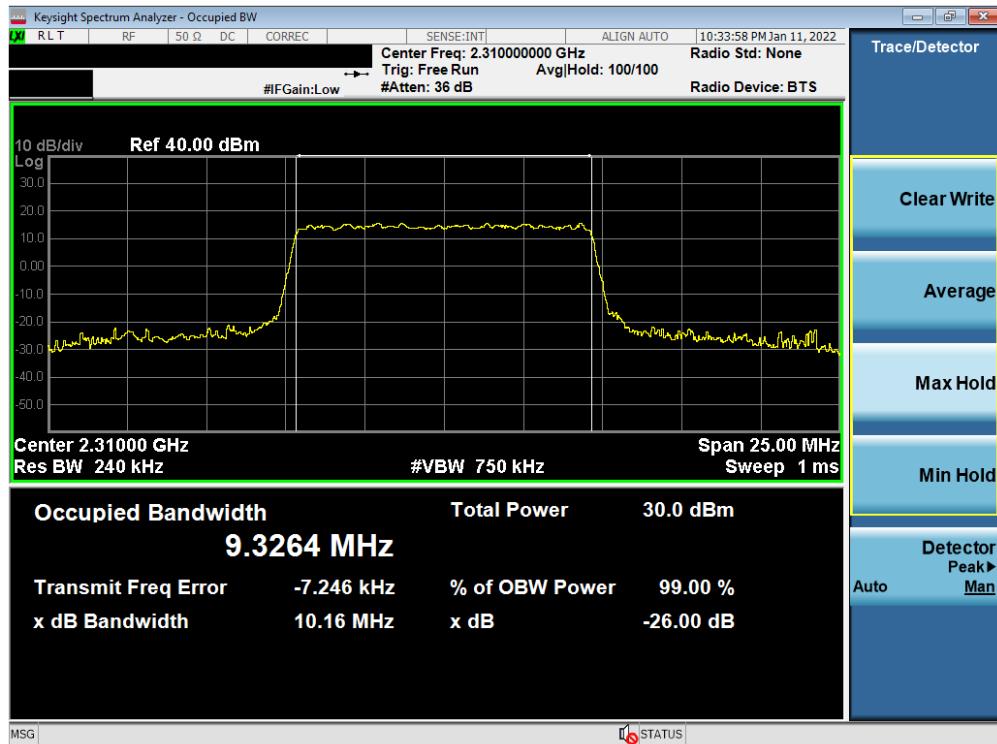


Plot 7-45. Occupied Bandwidth Plot (NR Band n30 - 5MHz DFT-s-OFDM 256-QAM - Full RB)

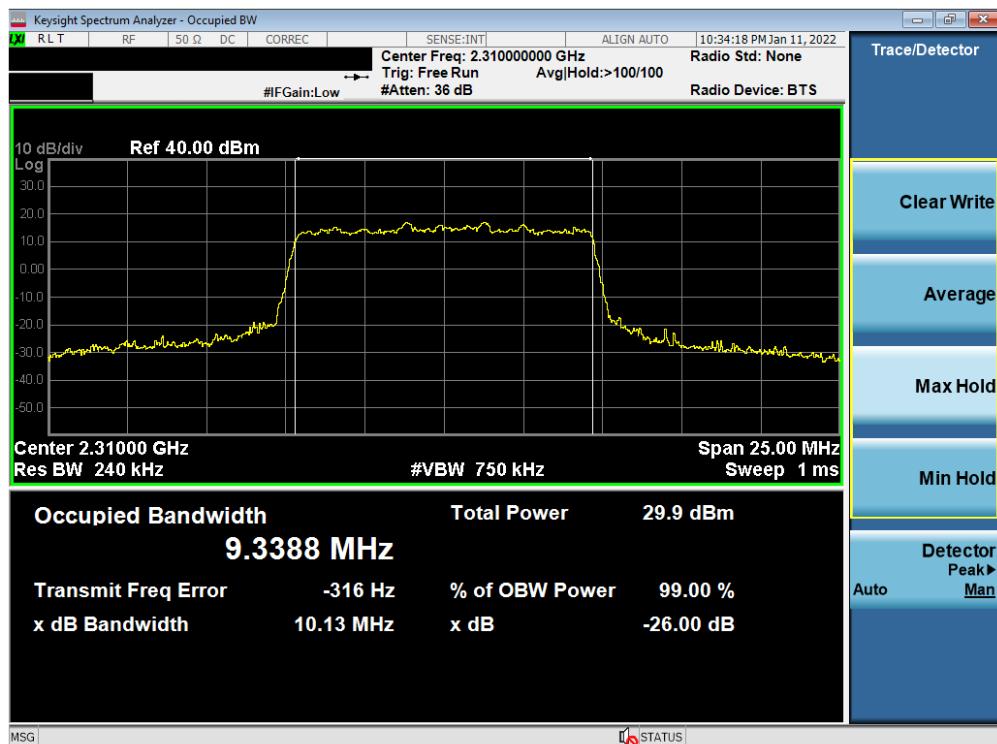


Plot 7-46. Occupied Bandwidth Plot (NR Band n30 - 10MHz DFT-s-OFDM π/2 BPSK - Full RB)

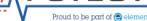
| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |



Plot 7-47. Occupied Bandwidth Plot (NR Band n30 - 10MHz CP-OFDM QPSK - Full RB)

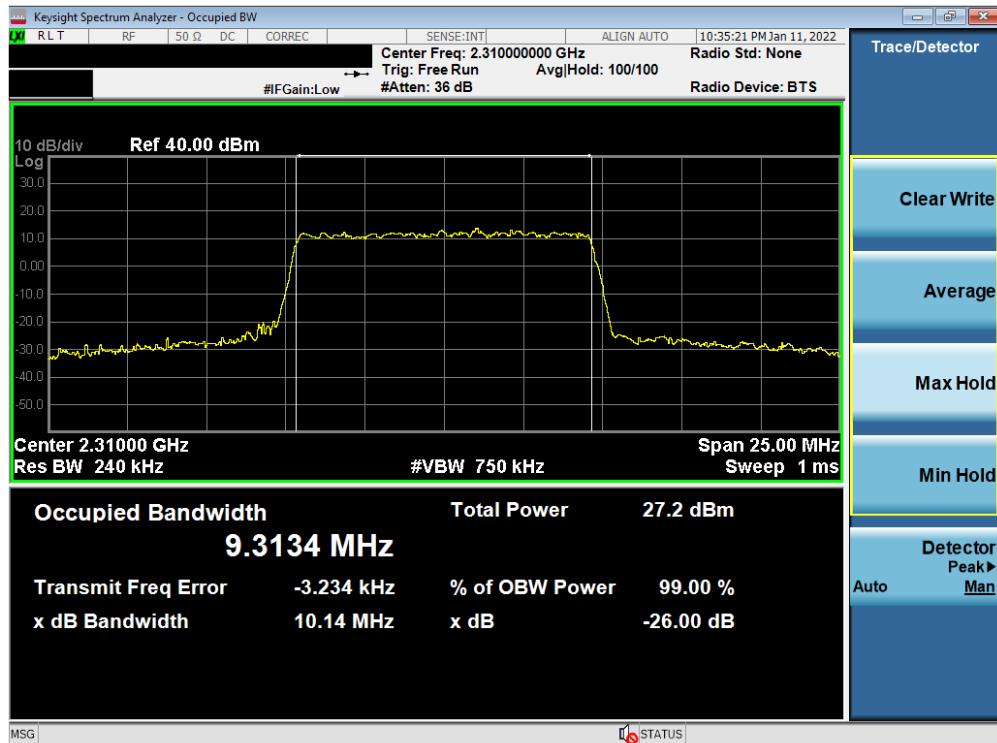


Plot 7-48. Occupied Bandwidth Plot (NR Band n30 - 10MHz CP-OFDM 16-QAM - Full RB)

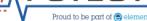
| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 40 of 266 |



Plot 7-49. Occupied Bandwidth Plot (NR Band n30 - 10MHz CP-OFDM 64-QAM - Full RB)



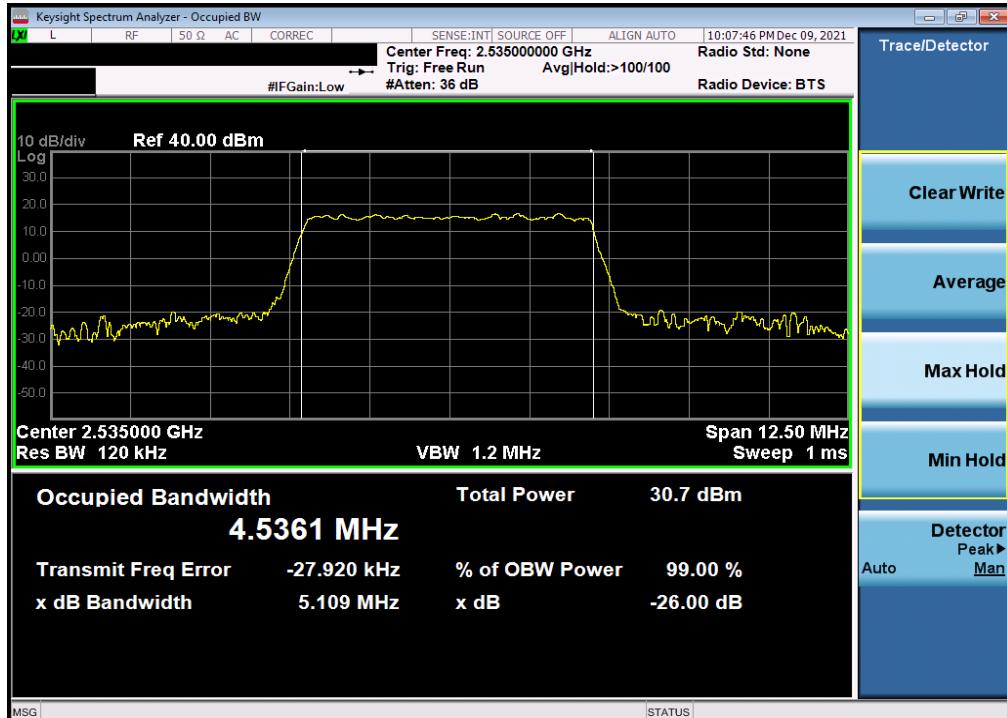
Plot 7-50. Occupied Bandwidth Plot (NR Band n30 - 10MHz CP-OFDM 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 41 of 266 |

NR Band n7

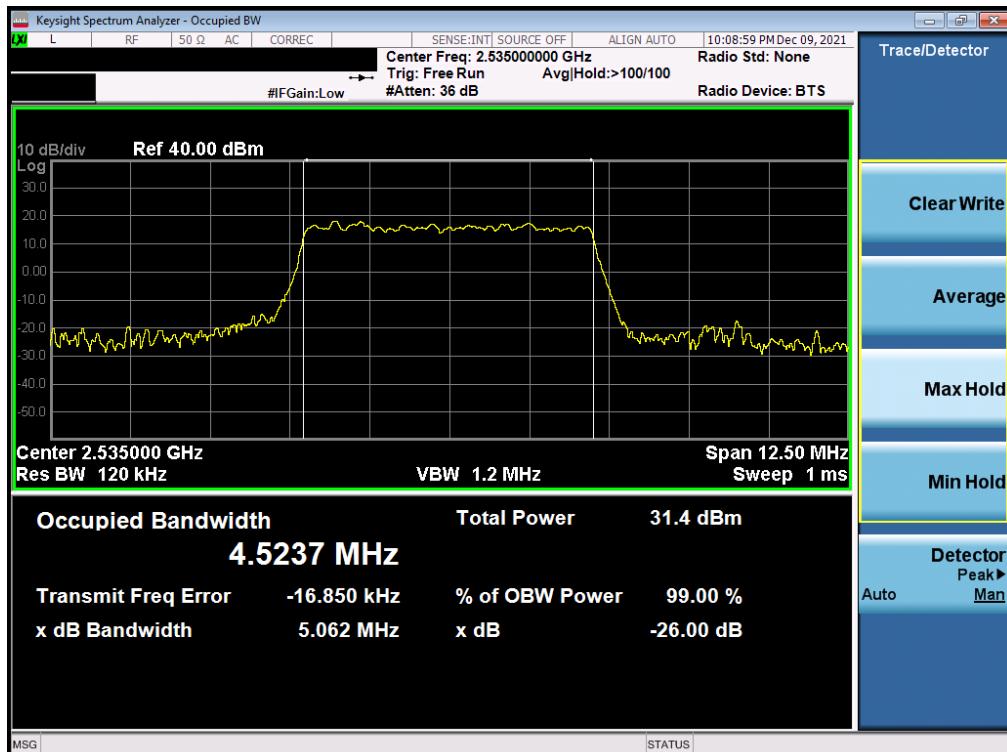


Plot 7-51. Occupied Bandwidth Plot (NR Band n7 - 5MHz DFT-s-OFDM π/2 BPSK - Full RB)

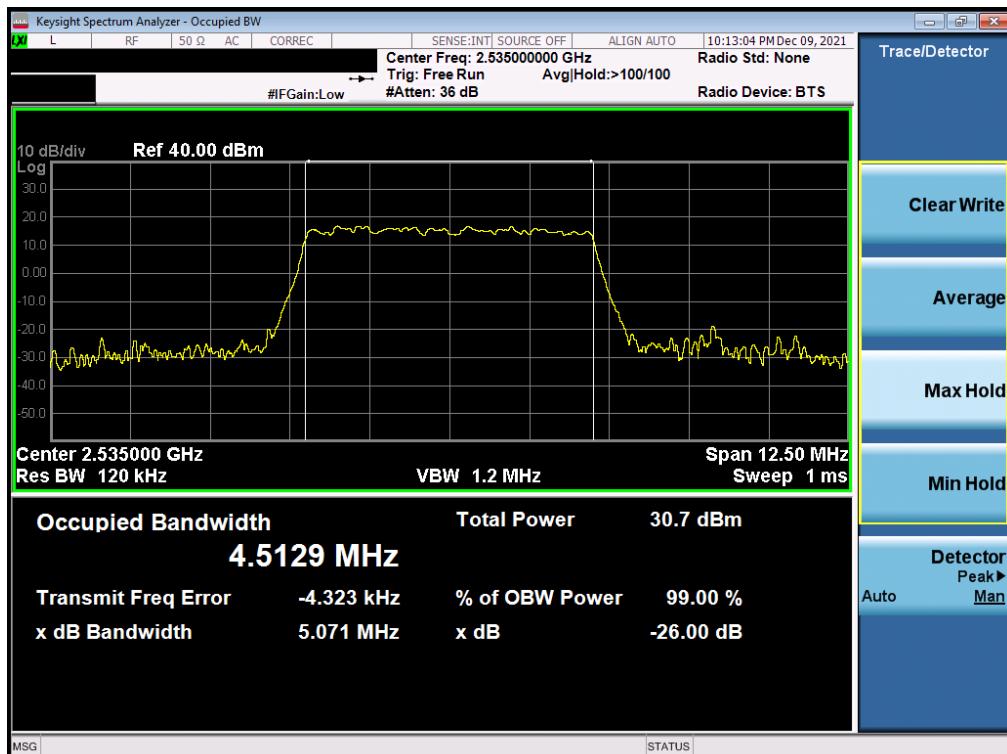


Plot 7-52. Occupied Bandwidth Plot (NR Band n7 - 5MHz CP-OFDM QPSK - Full RB)

| | | | | | |
|--|---|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 42 of 266 |

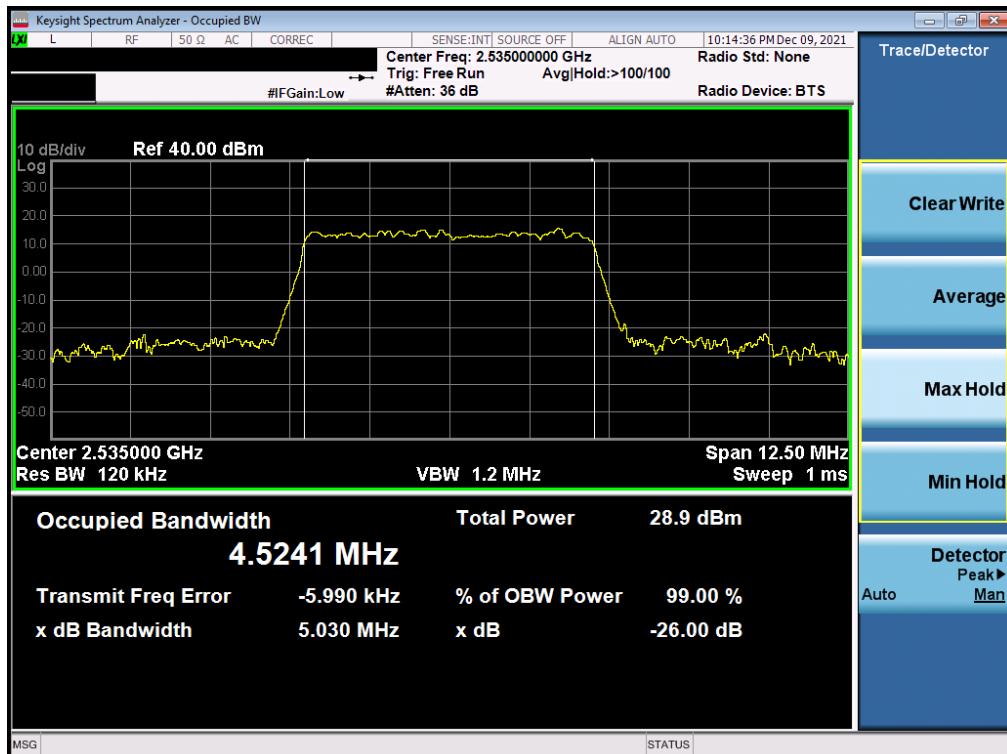


Plot 7-53. Occupied Bandwidth Plot (NR Band n7 - 5MHz DFT-s-OFDM 16-QAM - Full RB)

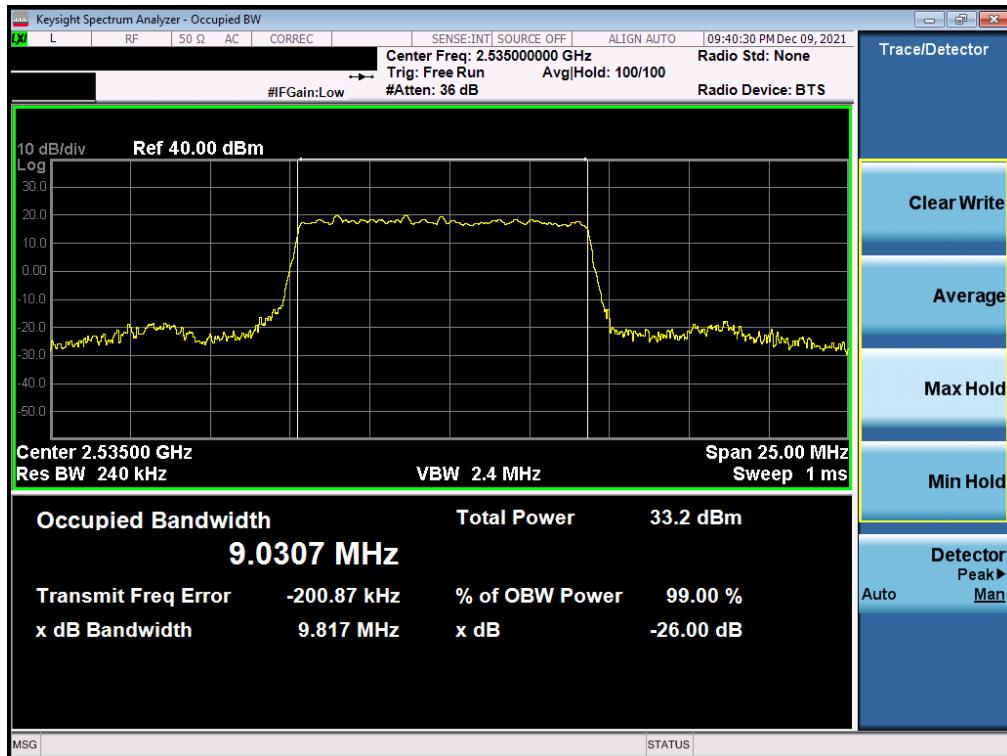


Plot 7-54. Occupied Bandwidth Plot (NR Band n7 - 5MHz DFT-s-OFDM 64-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 43 of 266 |

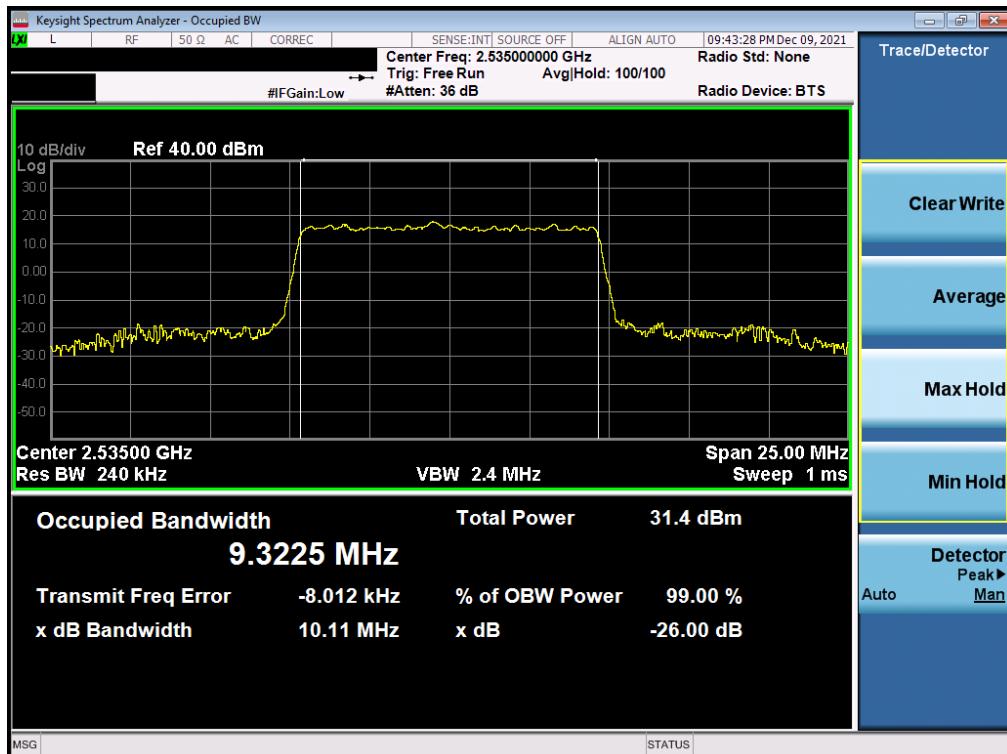


Plot 7-55. Occupied Bandwidth Plot (NR Band n7 - 5MHz DFT-s-OFDM 256-QAM - Full RB)

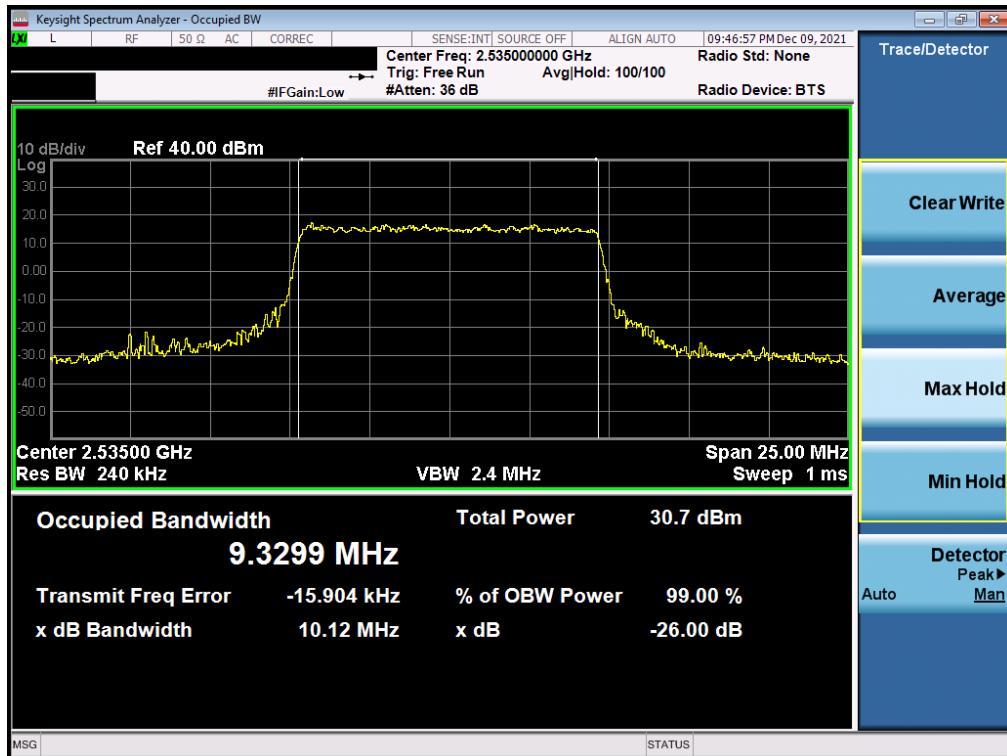


Plot 7-56. Occupied Bandwidth Plot (NR Band n7 - 10MHz DFT-s-OFDM π/2 BPSK - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 44 of 266 |

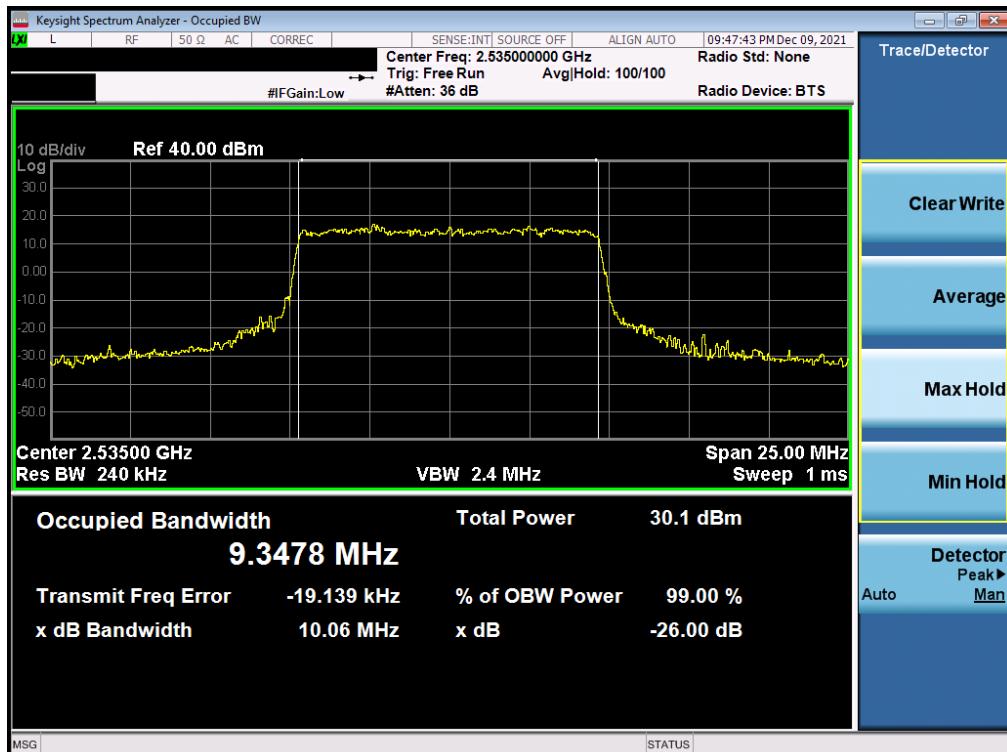


Plot 7-57. Occupied Bandwidth Plot (NR Band n7 - 10MHz CP-OFDM QPSK - Full RB)

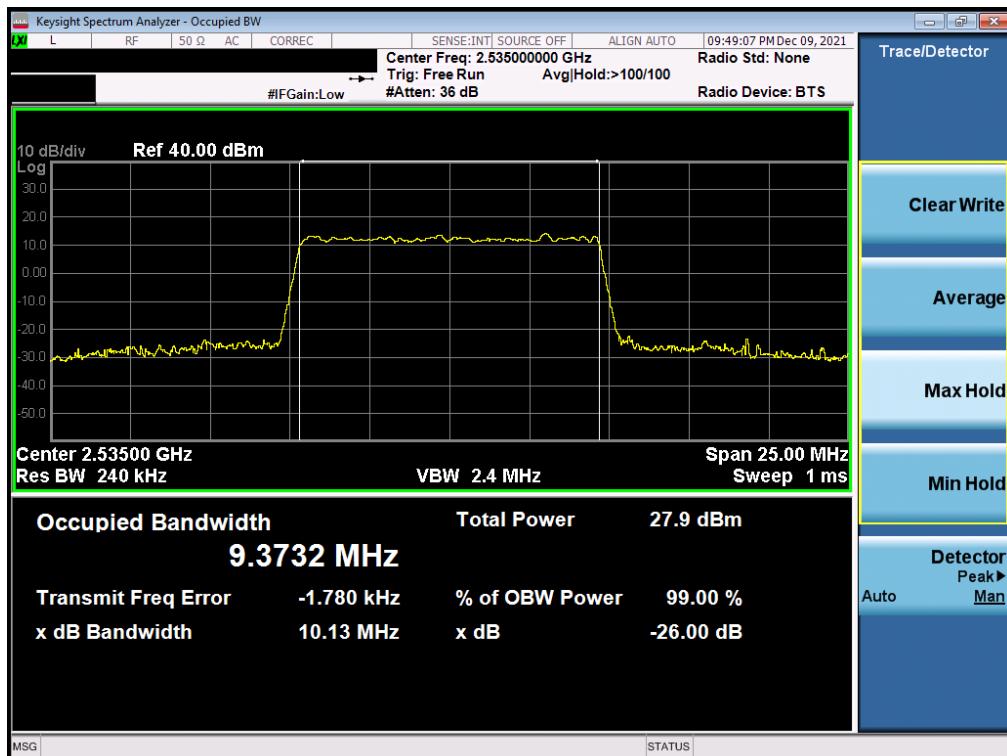


Plot 7-58. Occupied Bandwidth Plot (NR Band n7 - 10MHz CP-OFDM 16-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 45 of 266 |

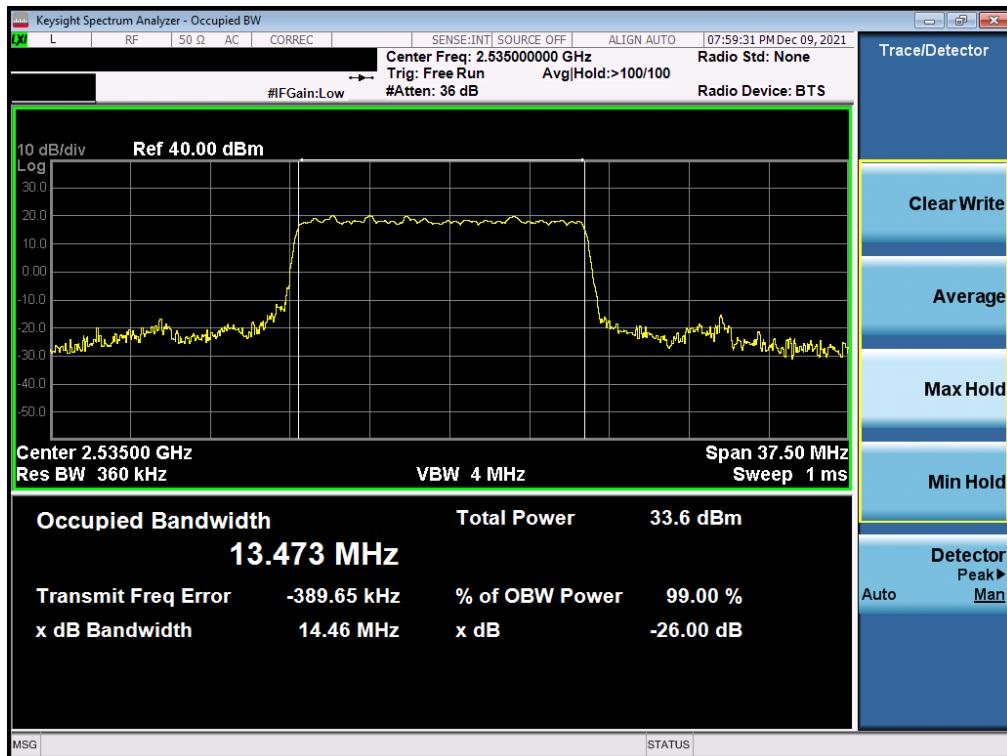


Plot 7-59. Occupied Bandwidth Plot (NR Band n7 - 10MHz CP-OFDM 64-QAM - Full RB)

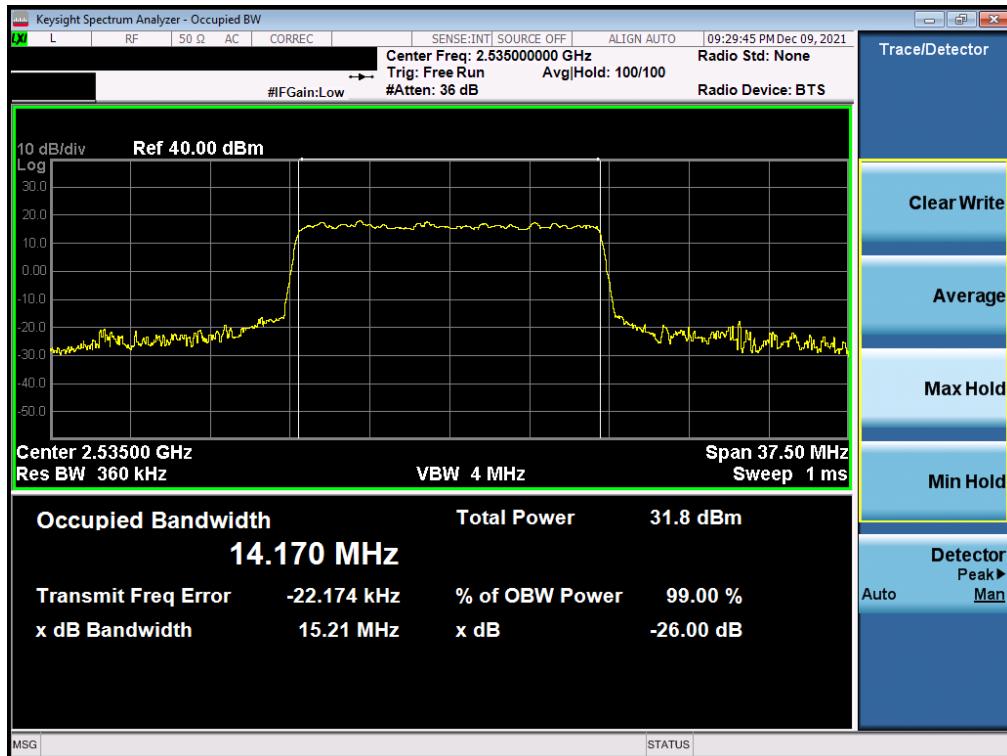


Plot 7-60. Occupied Bandwidth Plot (NR Band n7 - 10MHz CP-OFDM 256-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 46 of 266 |

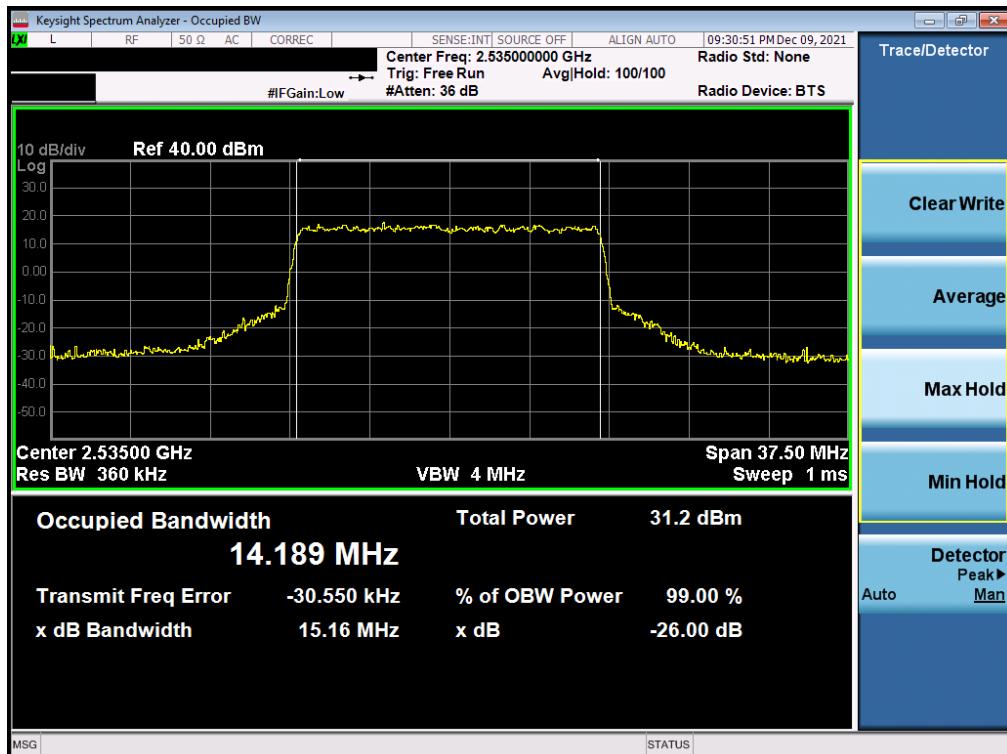


Plot 7-61. Occupied Bandwidth Plot (NR Band n7 - 15MHz DFT-s-OFDM π/2 BPSK - Full RB)



Plot 7-62. Occupied Bandwidth Plot (NR Band n7 - 15MHz CP-OFDM QPSK - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 47 of 266 |

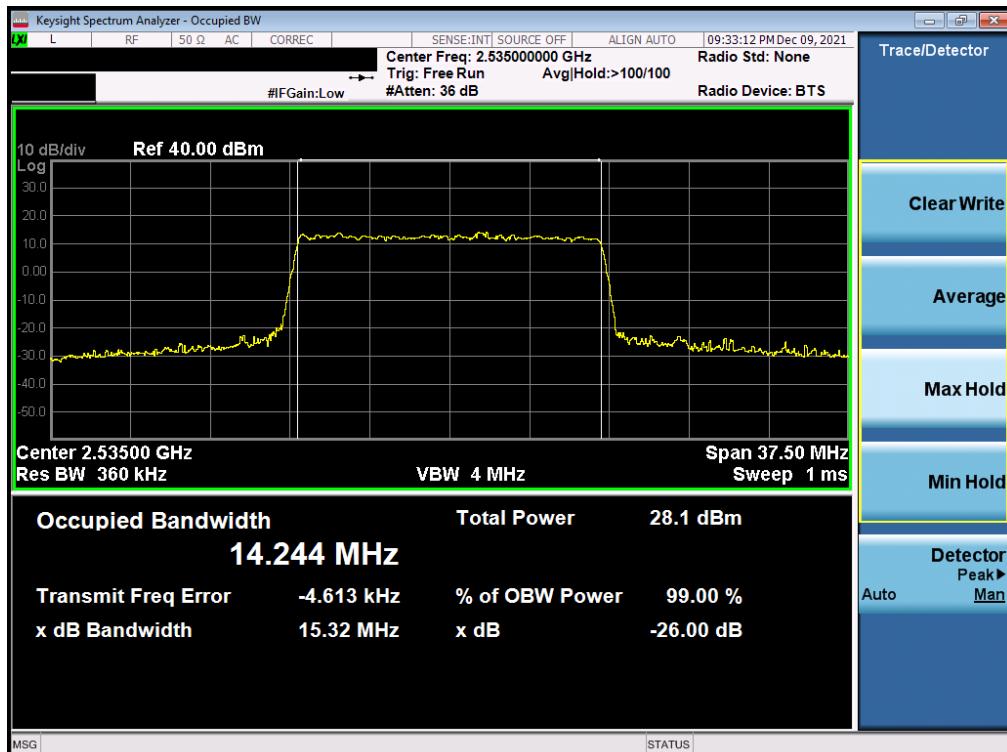


Plot 7-63. Occupied Bandwidth Plot (NR Band n7 - 15MHz CP-OFDM 16-QAM - Full RB)

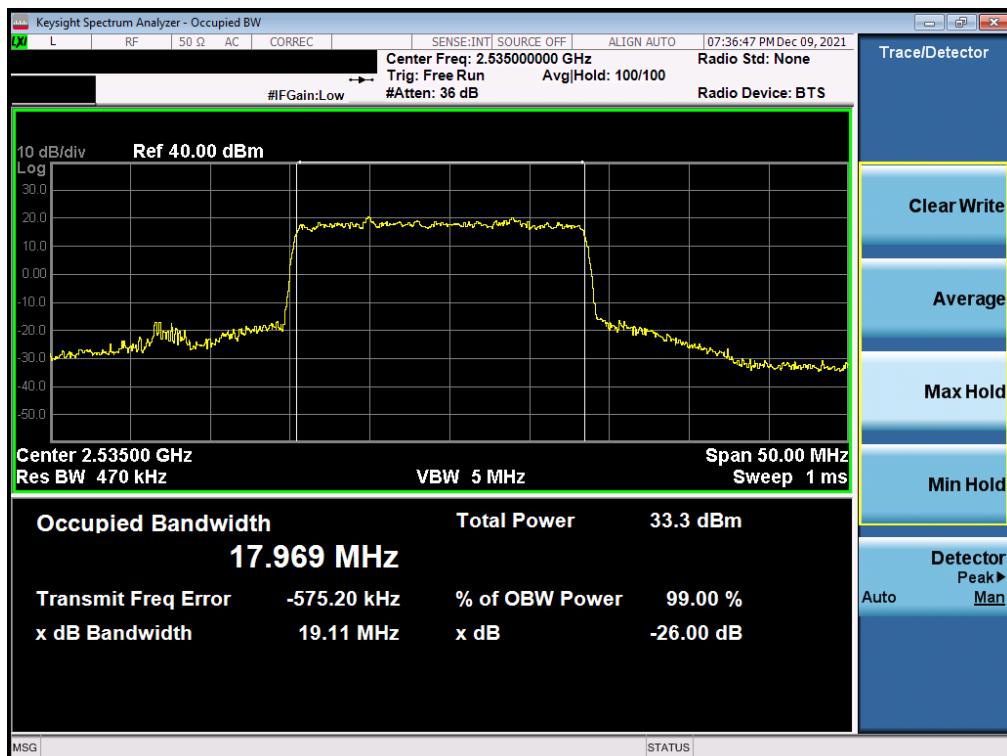


Plot 7-64. Occupied Bandwidth Plot (NR Band n7 - 15MHz CP-OFDM 64-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 48 of 266 |

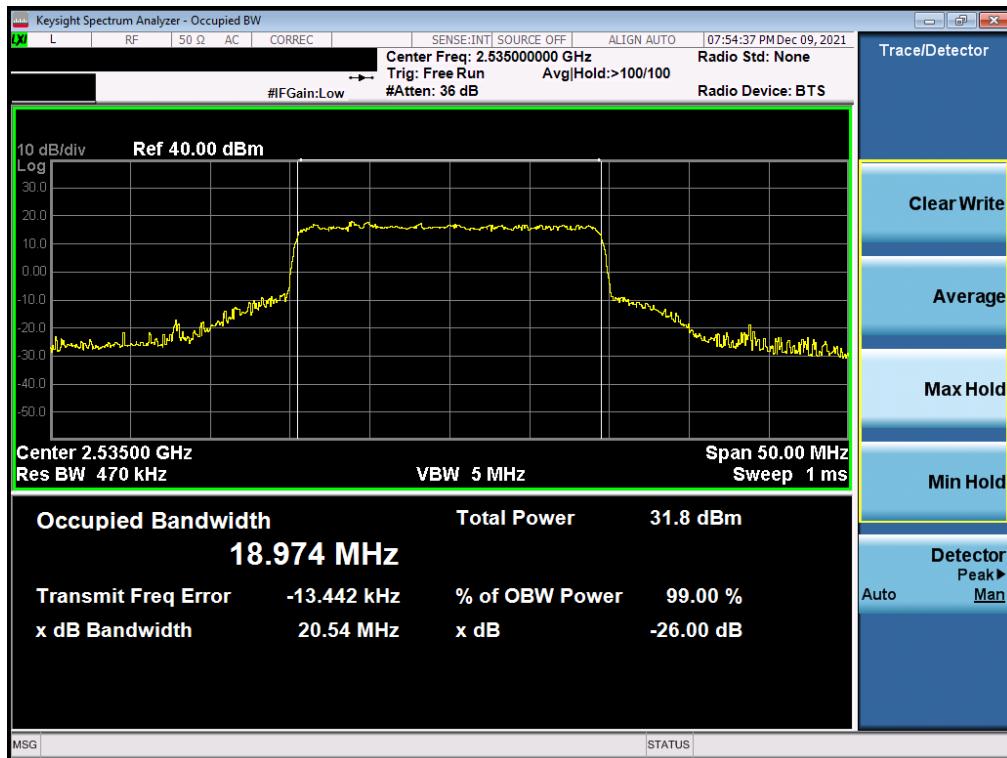


Plot 7-65. Occupied Bandwidth Plot (NR Band n7 - 15MHz CP-OFDM 256-QAM - Full RB)

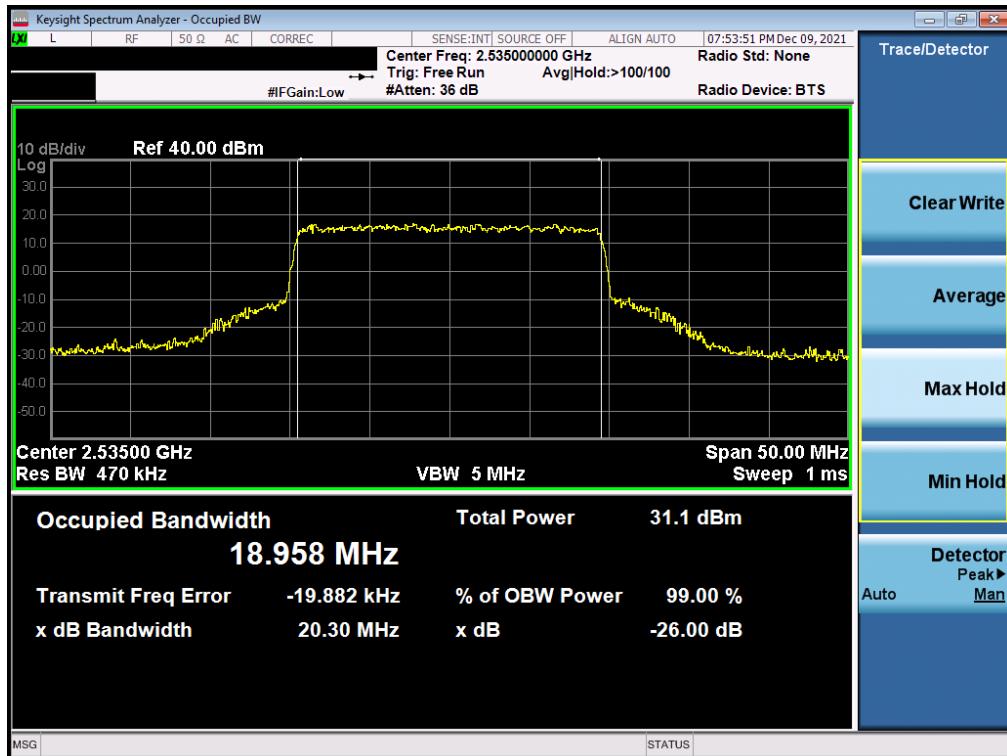


Plot 7-66. Occupied Bandwidth Plot (NR Band n7 - 20MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 49 of 266 |

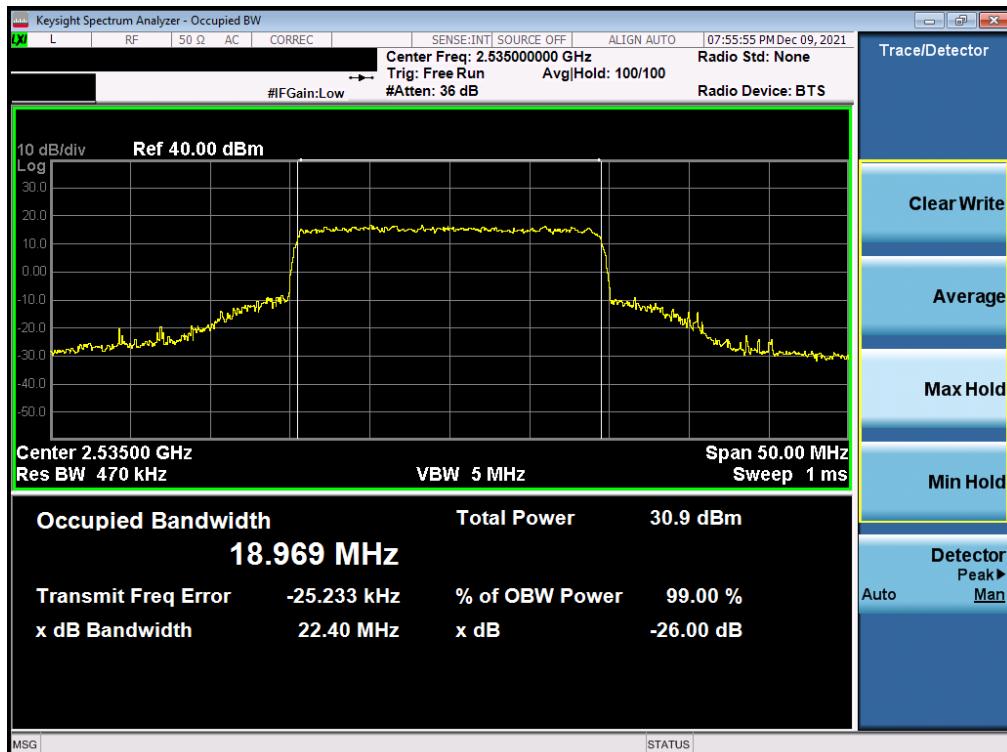


Plot 7-67. Occupied Bandwidth Plot (NR Band n7 - 20MHz CP-OFDM QPSK - Full RB)

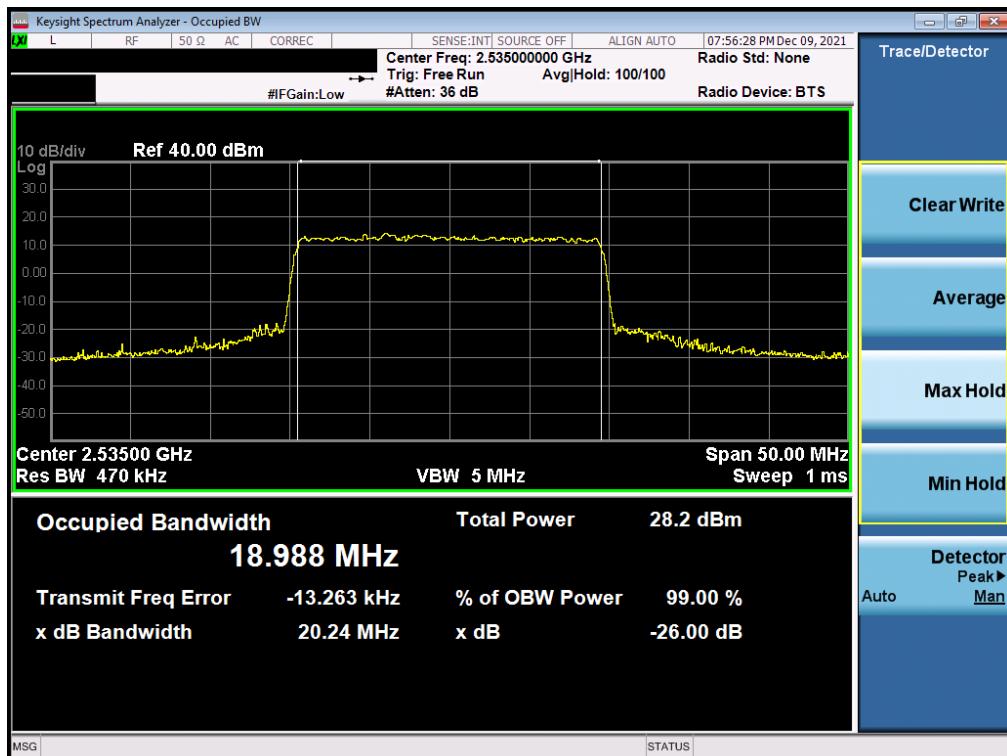


Plot 7-68. Occupied Bandwidth Plot (NR Band n7 - 20MHz CP-OFDM 16-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |

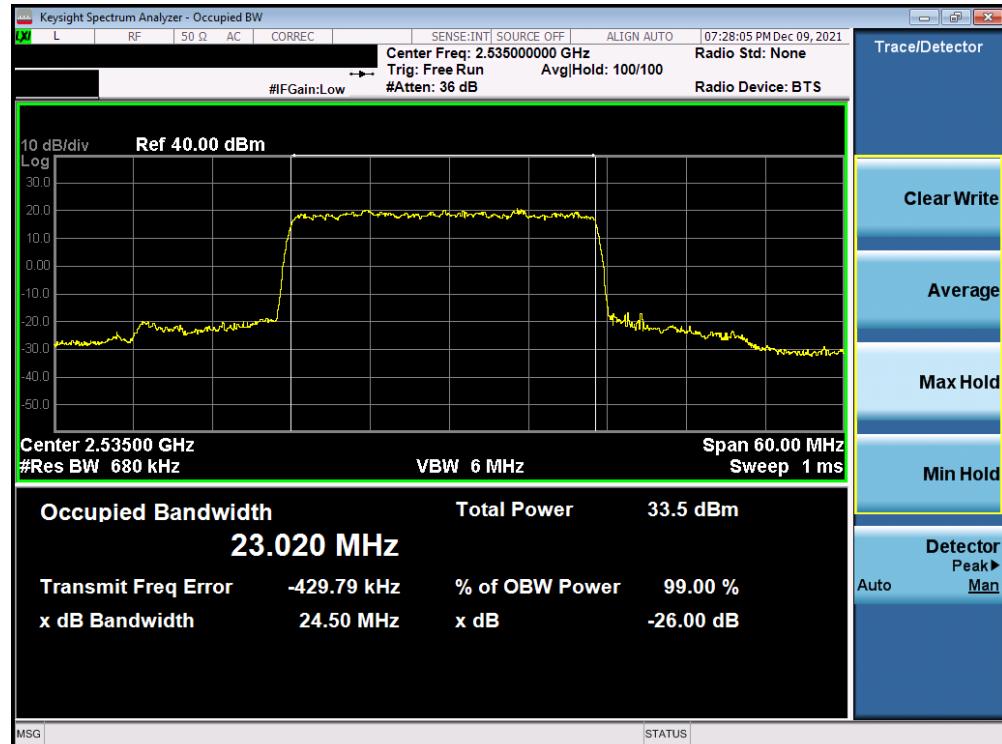


Plot 7-69. Occupied Bandwidth Plot (NR Band n7 - 20MHz CP-OFDM 64-QAM - Full RB)

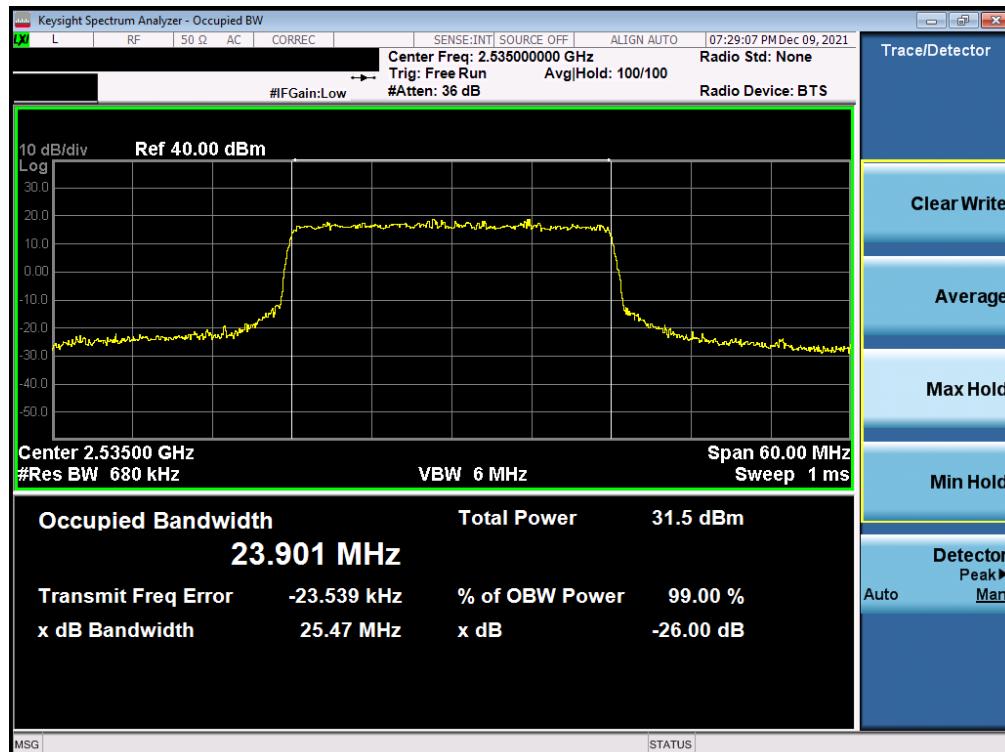


Plot 7-70. Occupied Bandwidth Plot (NR Band n7 - 20MHz CP-OFDM 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 51 of 266 |

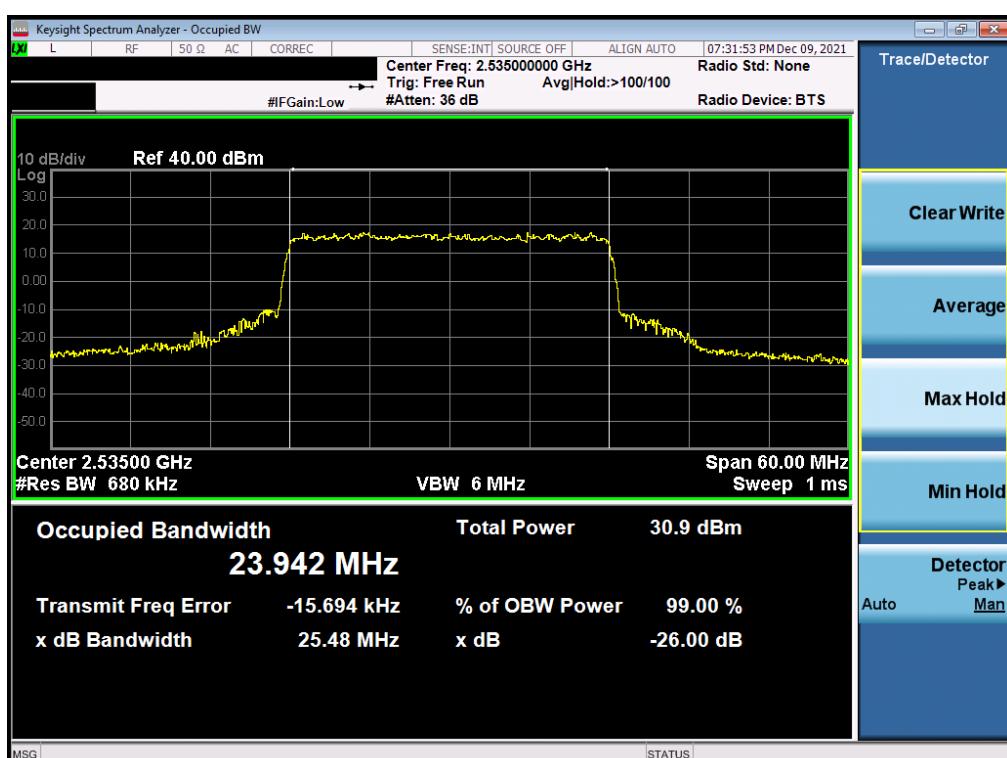
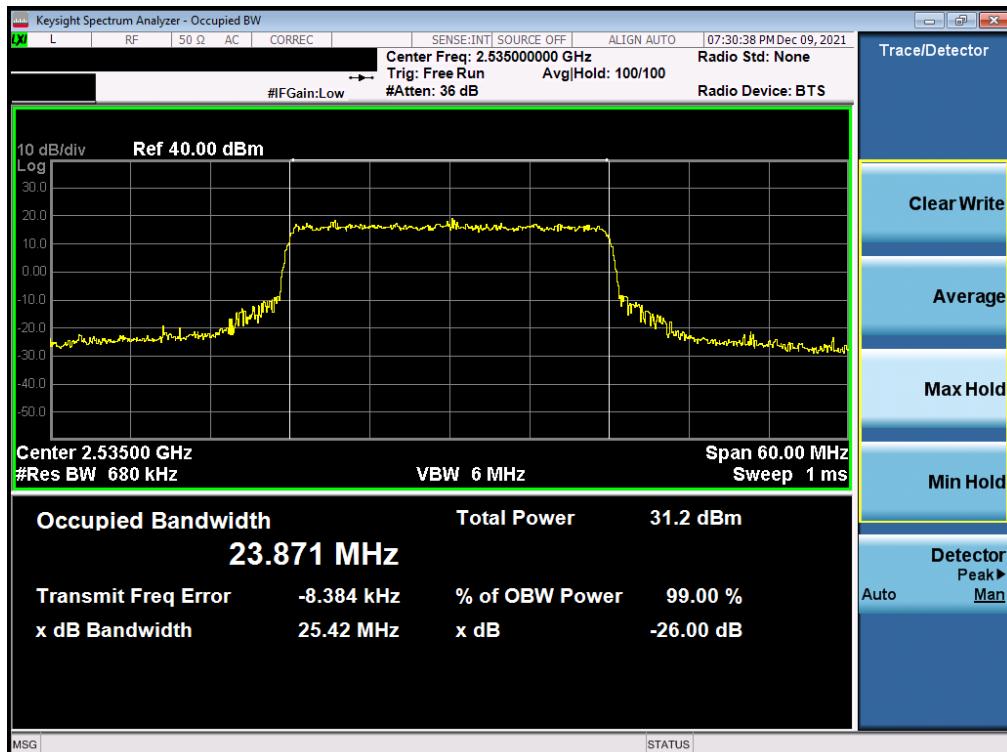


Plot 7-71. Occupied Bandwidth Plot (NR Band n7 - 25MHz DFT-s-OFDM π/2 BPSK - Full RB)

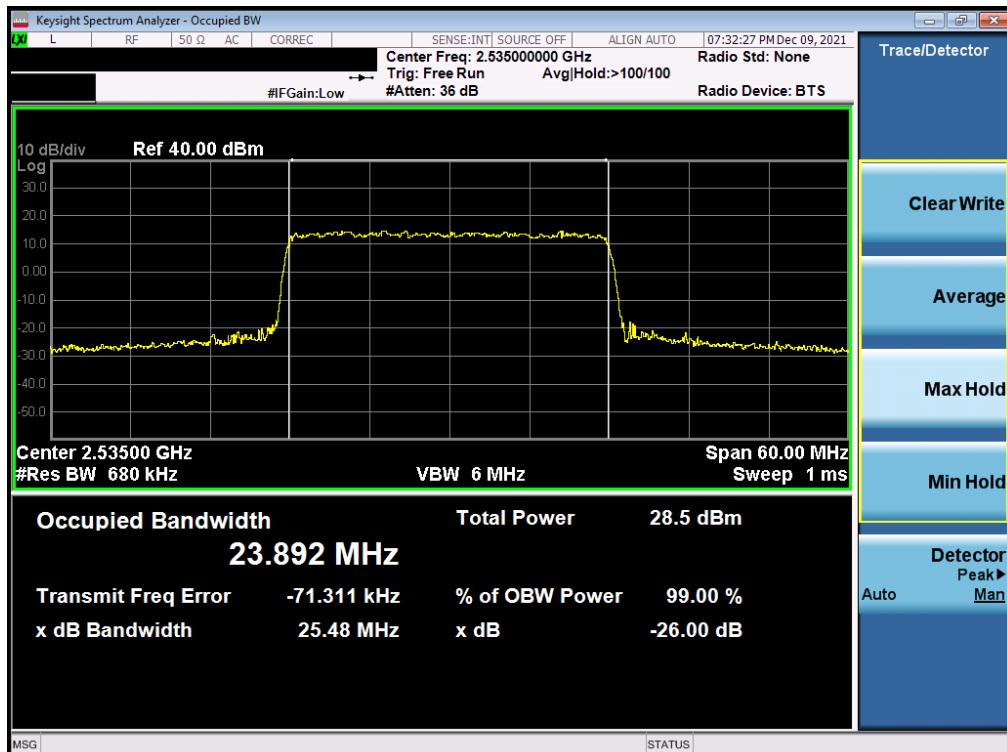


Plot 7-72. Occupied Bandwidth Plot (NR Band n7 - 25MHz CP-OFDM QPSK - Full RB)

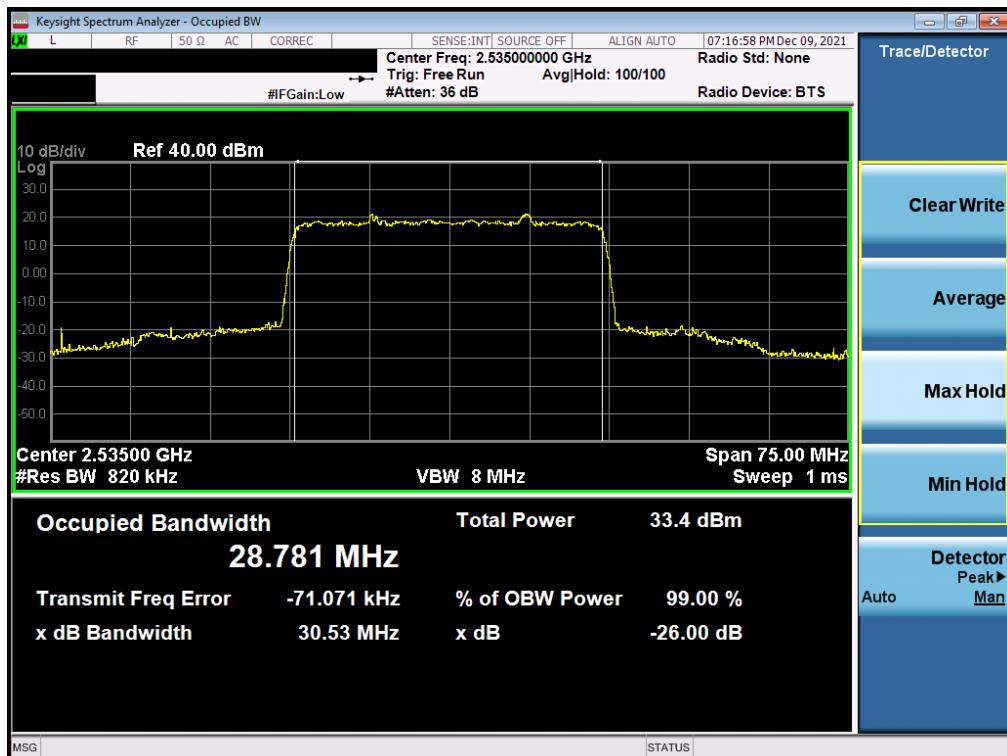
| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 52 of 266 |



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|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 53 of 266 |

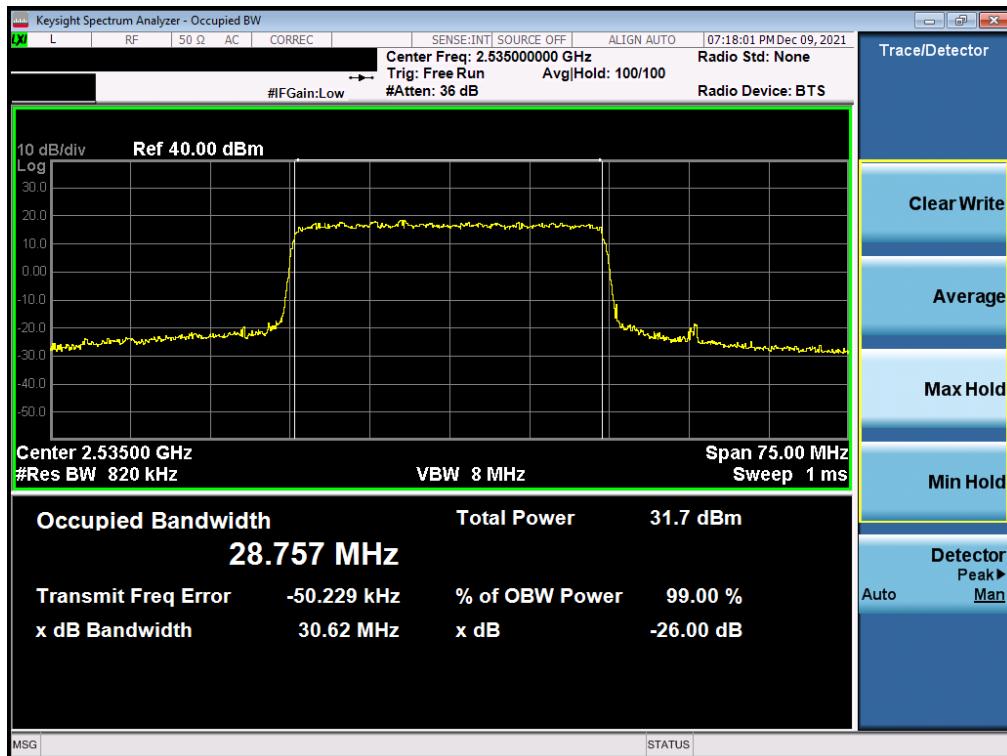


Plot 7-75. Occupied Bandwidth Plot (NR Band n7 - 25MHz CP-OFDM 256-QAM - Full RB)

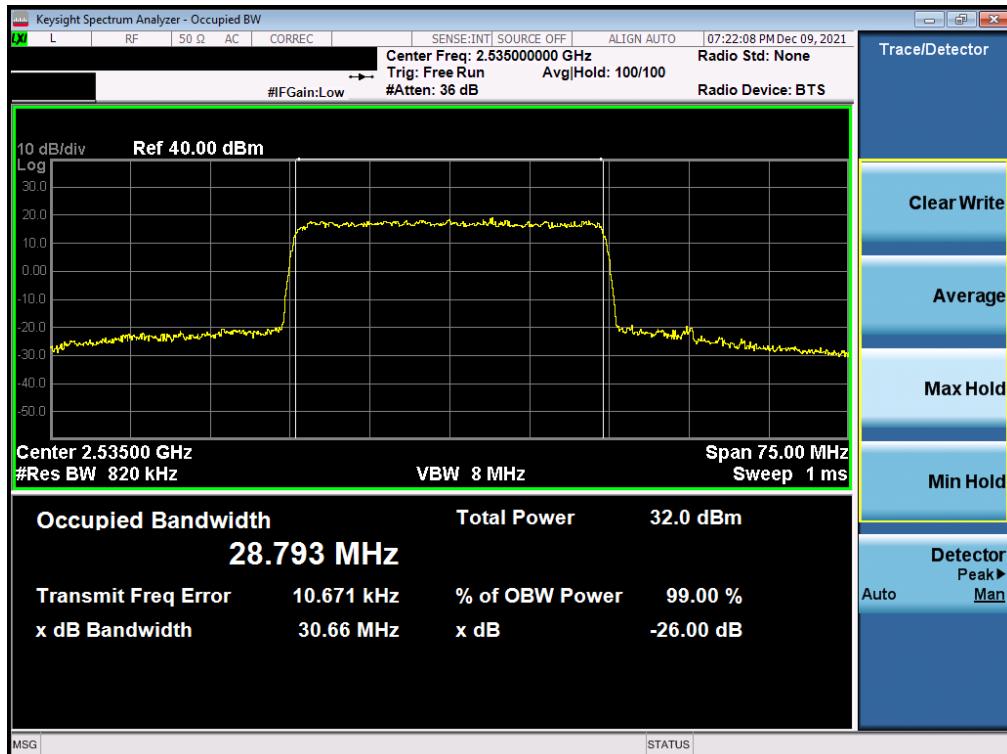


Plot 7-76. Occupied Bandwidth Plot (NR Band n7 - 30MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 54 of 266 |

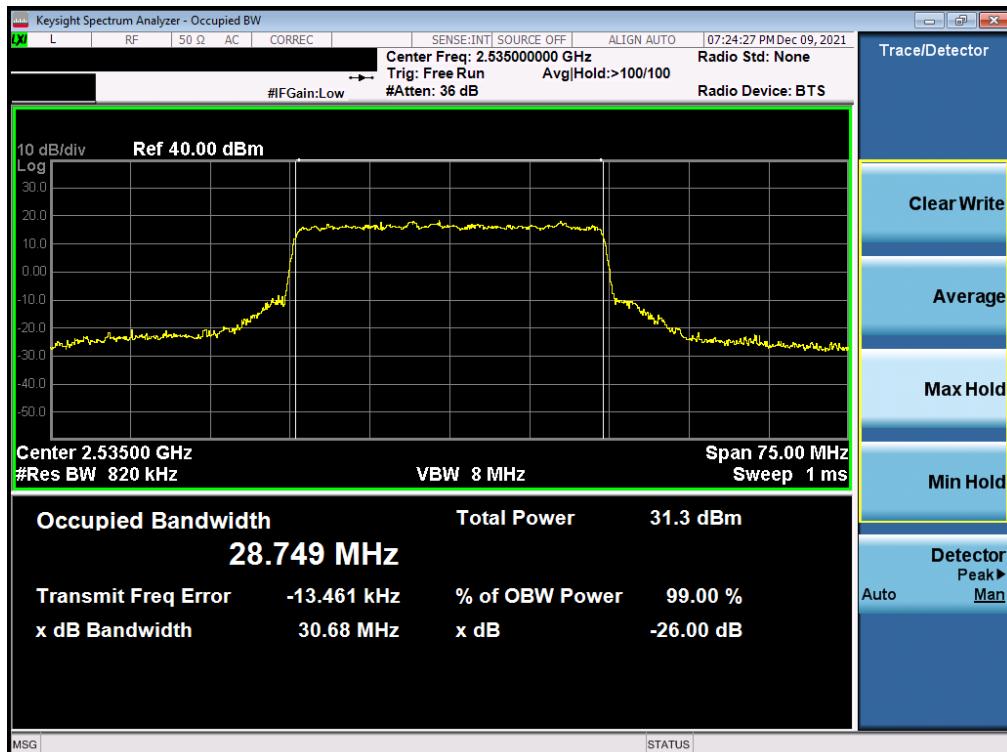


Plot 7-77. Occupied Bandwidth Plot (NR Band n7 - 30MHz CP-OFDM QPSK - Full RB)

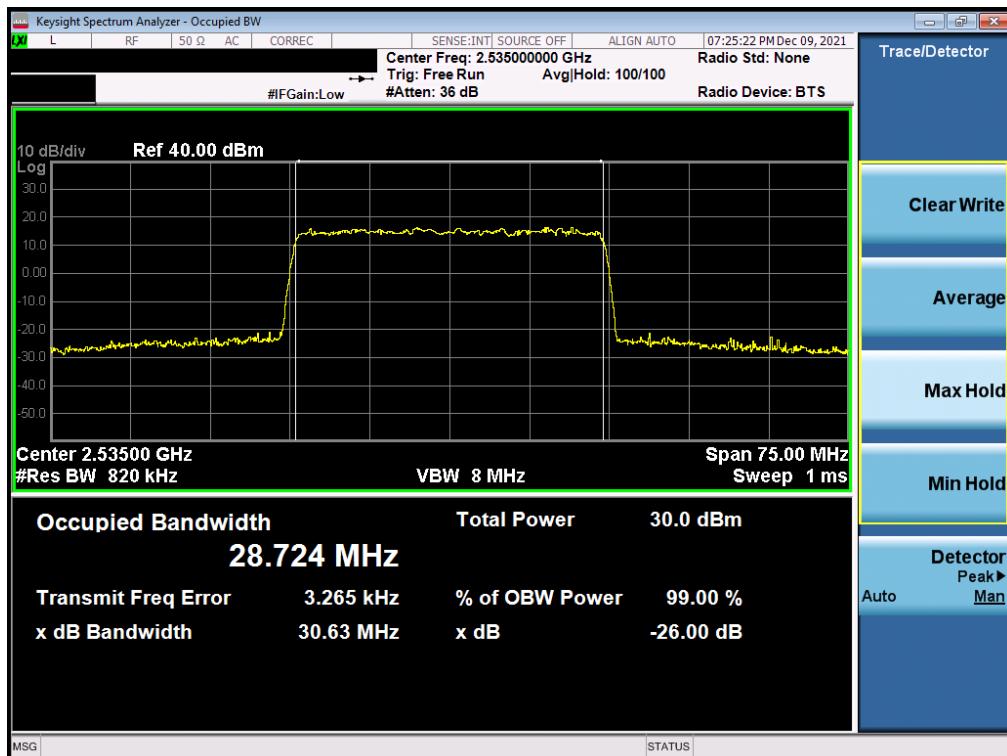


Plot 7-78. Occupied Bandwidth Plot (NR Band n7 - 30MHz DFT-s-OFDM 16-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |

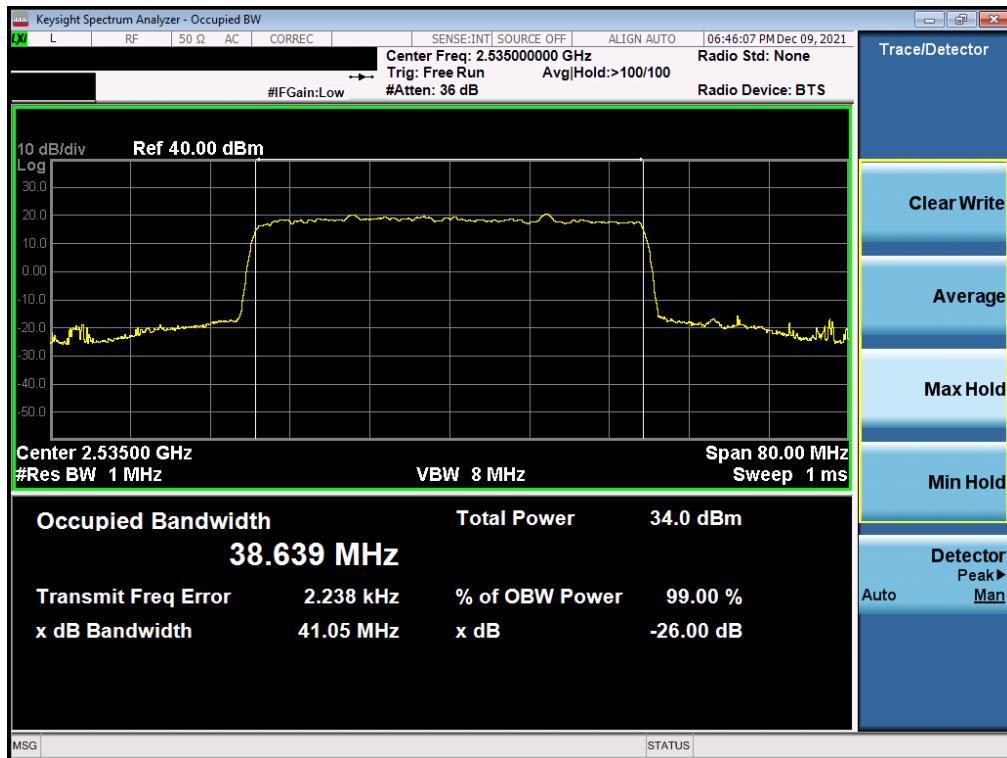


Plot 7-79. Occupied Bandwidth Plot (NR Band n7 - 30MHz CP-OFDM 64-QAM - Full RB)

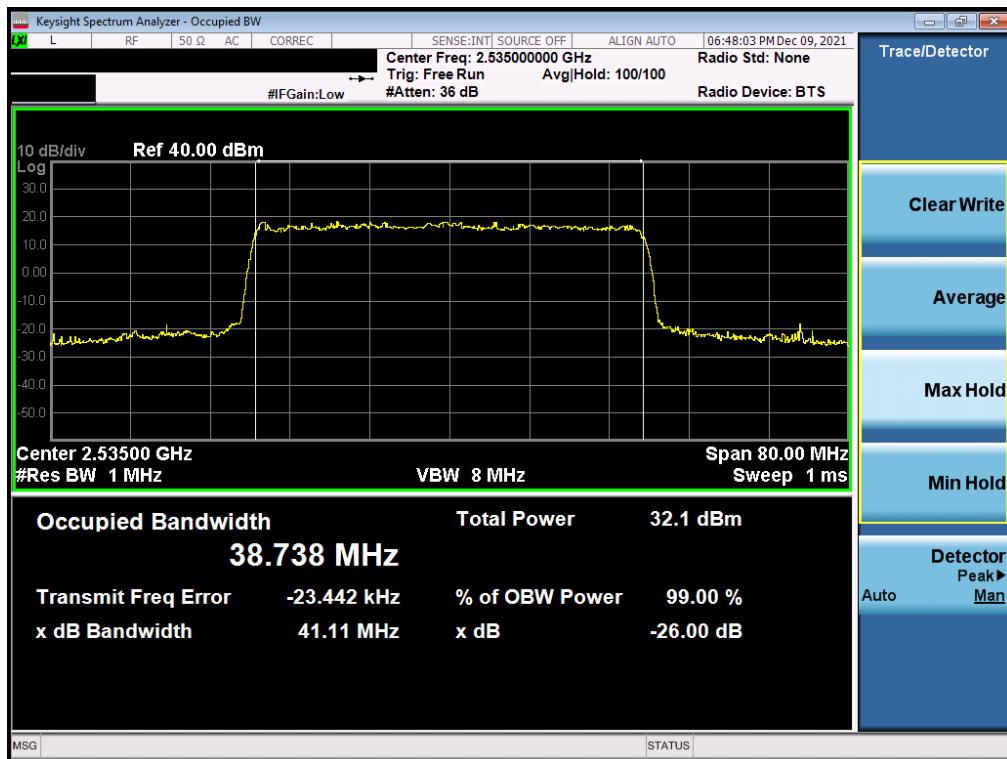


Plot 7-80. Occupied Bandwidth Plot (NR Band n7 - 30MHz DFT-s-OFDM 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | |

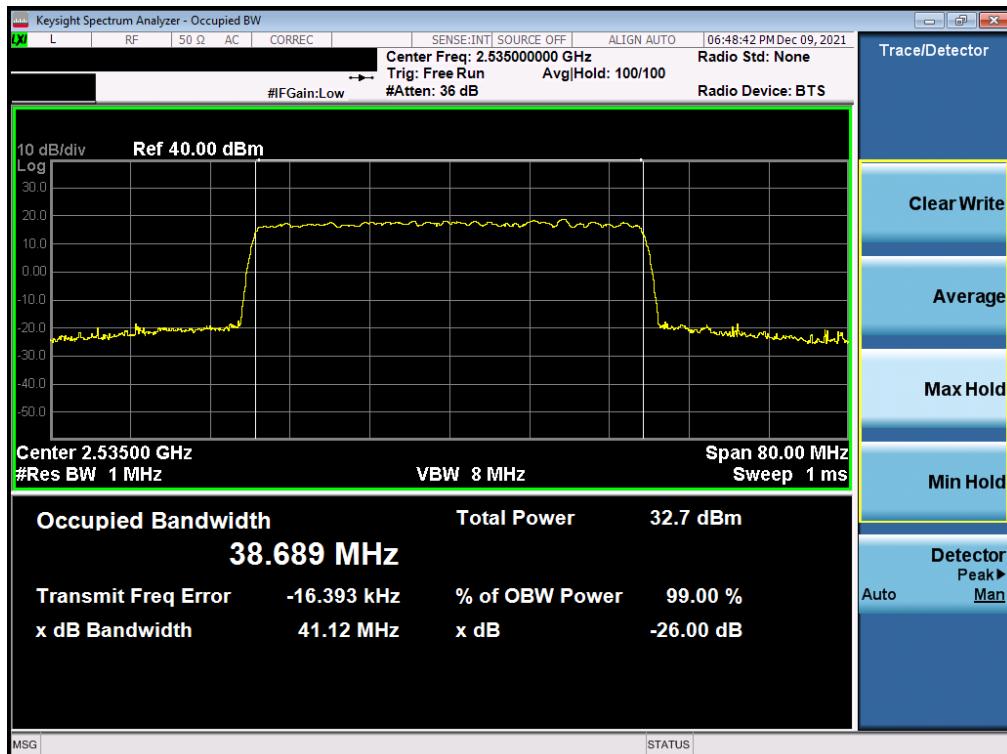


Plot 7-81. Occupied Bandwidth Plot (NR Band n7 - 40MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

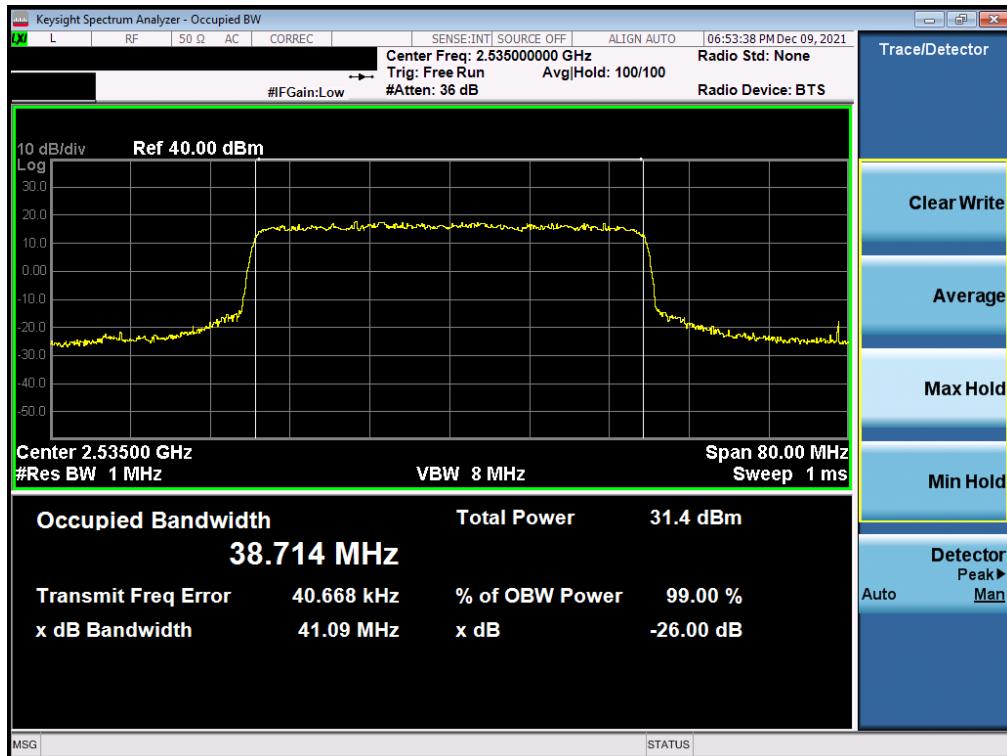


Plot 7-82. Occupied Bandwidth Plot (NR Band n7 - 40MHz CP-OFDM QPSK - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 57 of 266 |

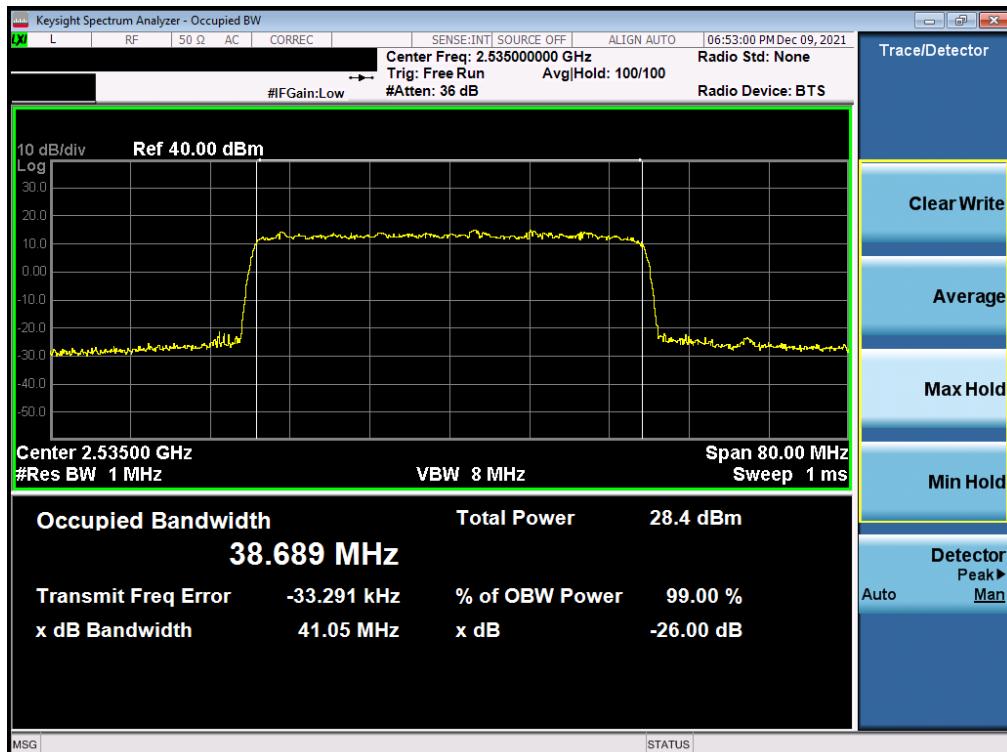


Plot 7-83. Occupied Bandwidth Plot (NR Band n7 - 40MHz DFT-s-OFDM 16-QAM - Full RB)



Plot 7-84. Occupied Bandwidth Plot (NR Band n7 - 40MHz CP-OFDM 64-QAM - Full RB)

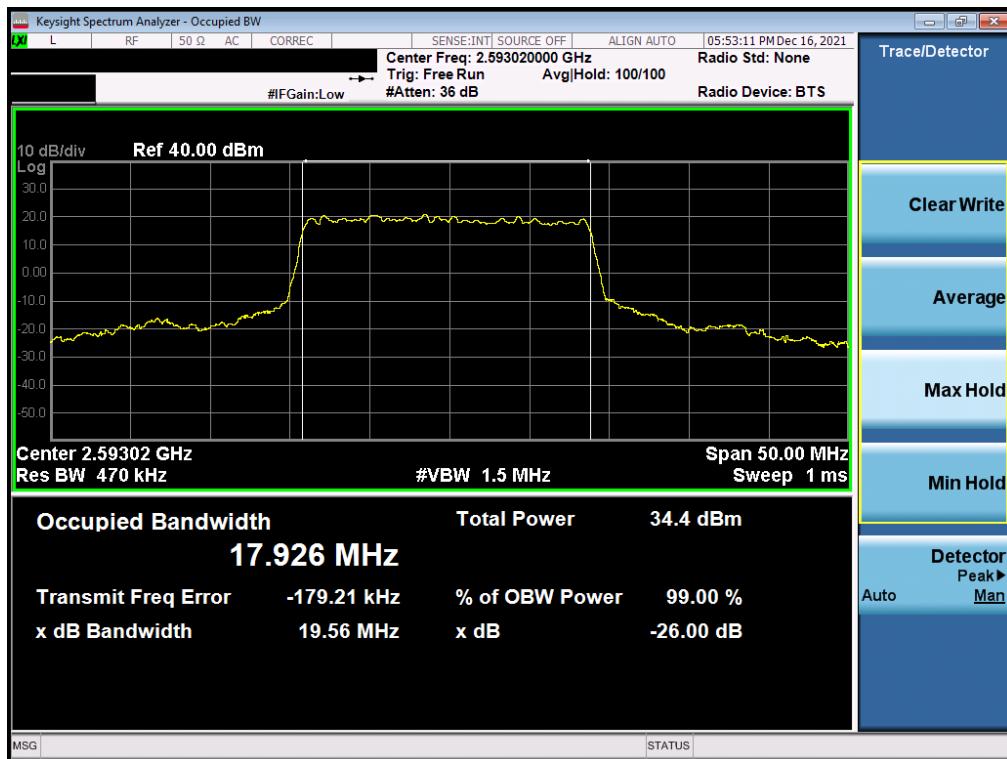
| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 58 of 266 |



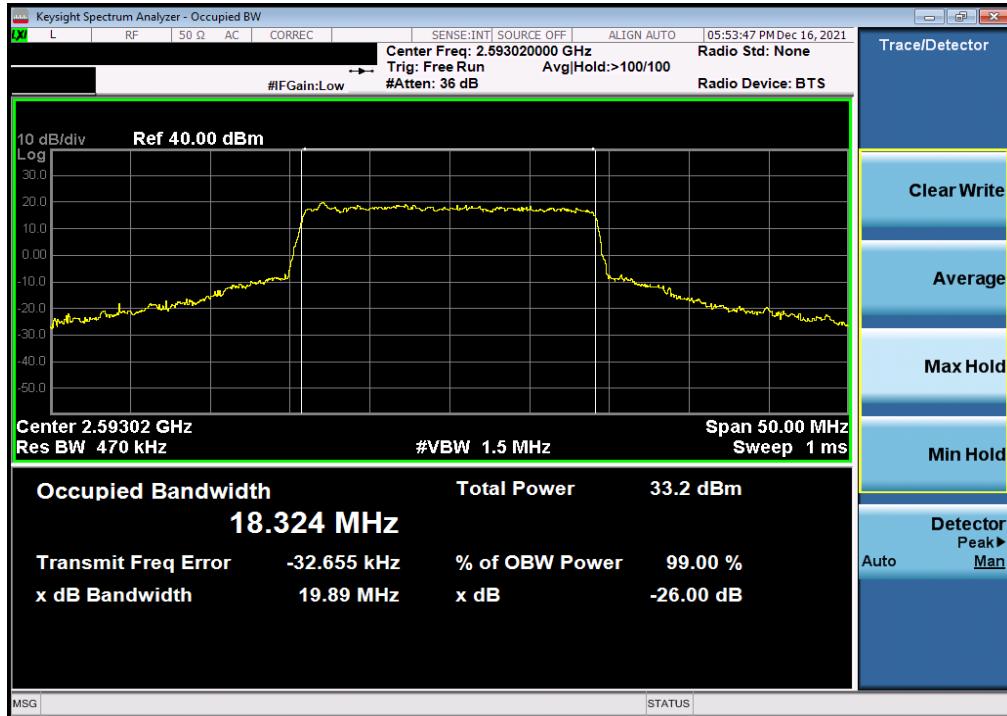
Plot 7-85. Occupied Bandwidth Plot (NR Band n7 - 40MHz CP-OFDM 256-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|-----------------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 59 of 266 |

NR Band n41



Plot 7-86. Occupied Bandwidth Plot (NR Band n41 - 20MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)



Plot 7-87. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM QPSK - Full RB)

| | | | | | |
|--|---|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 |  PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 60 of 266 |

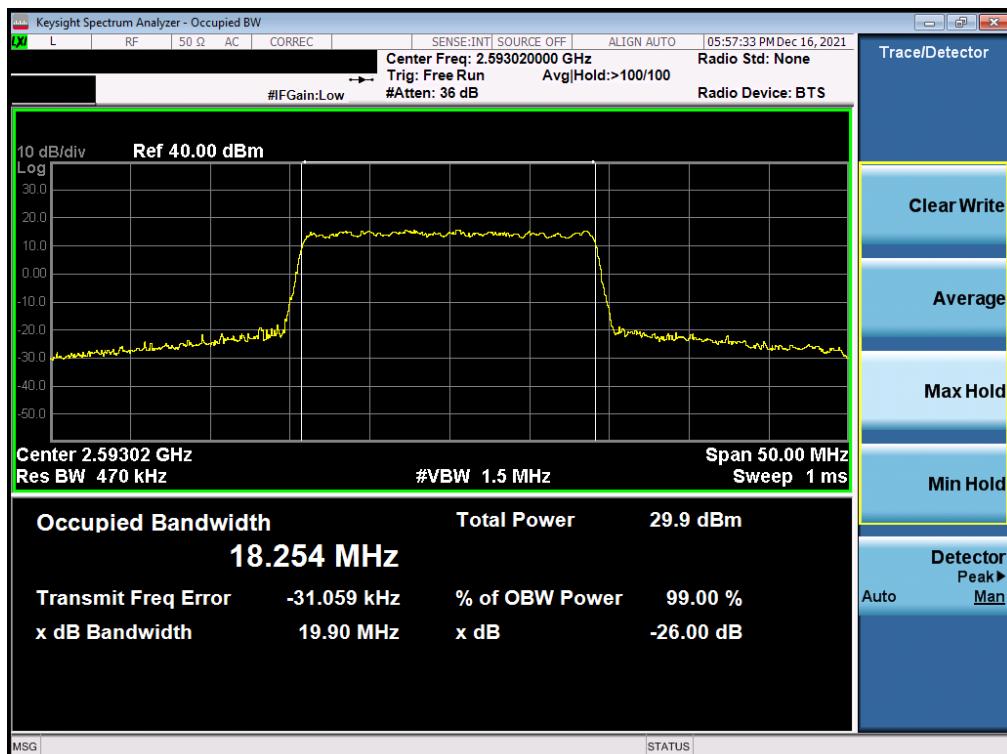


Plot 7-88. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM 16-QAM - Full RB)



Plot 7-89. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM 64-QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 61 of 266 |



Plot 7-90. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM 256-QAM - Full RB)

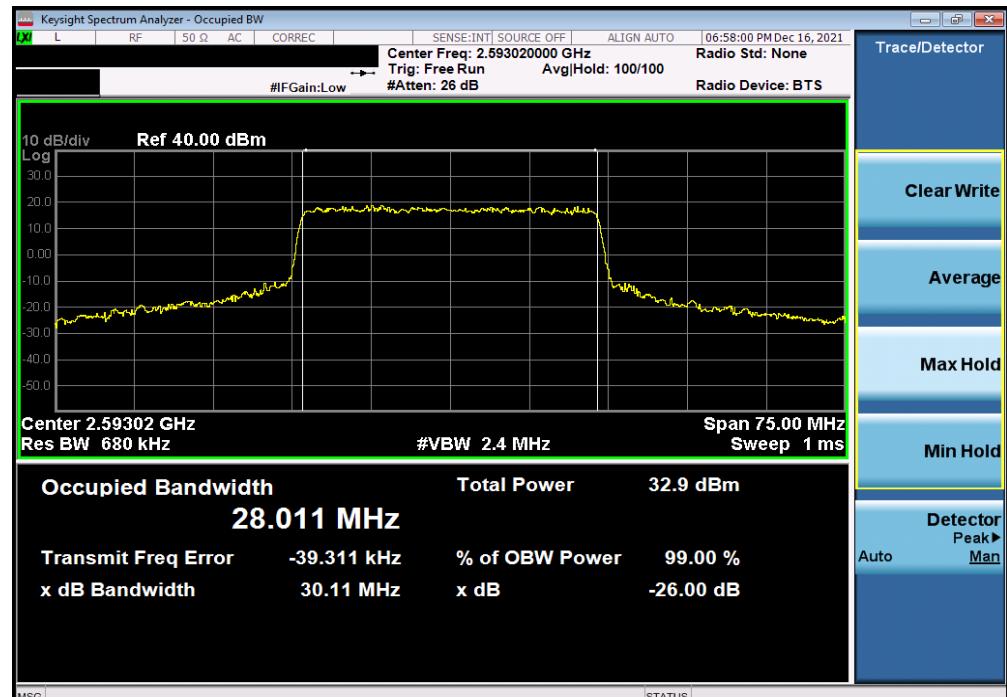


Plot 7-91. Occupied Bandwidth Plot (NR Band n41 - 30MHz DFT-s-OFDM π/2 BPSK - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 62 of 266 |



Plot 7-92. Occupied Bandwidth Plot (NR Band n41 - 30MHz CP-OFDM QPSK - Full RB)

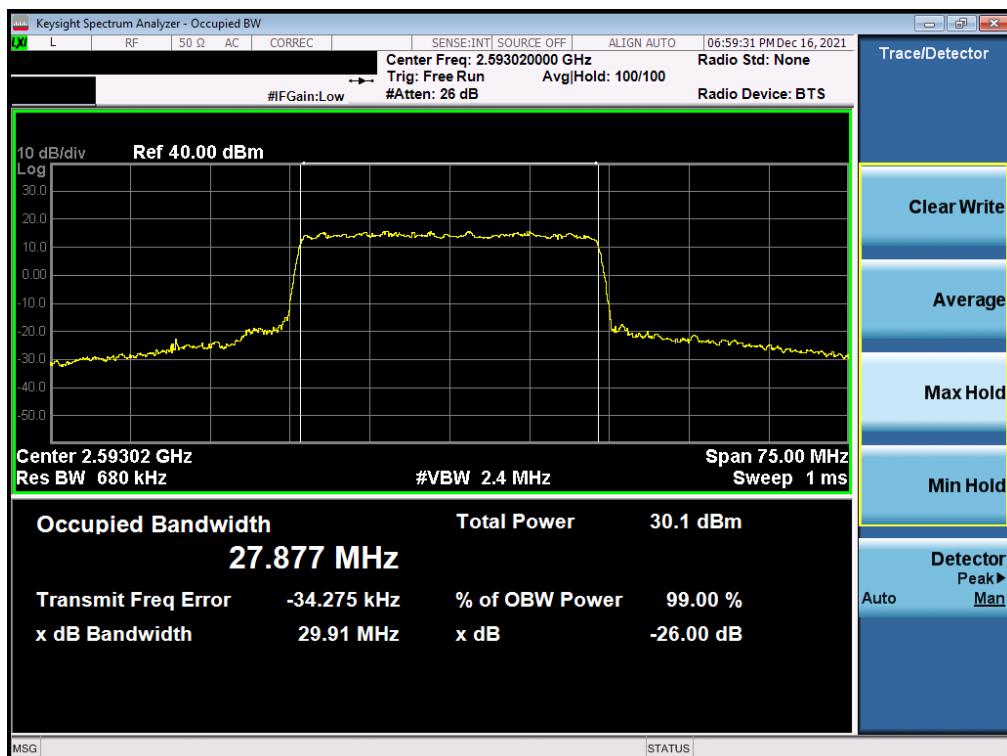


Plot 7-93. Occupied Bandwidth Plot (NR Band n41 - 30MHz CP-OFDM 16QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 63 of 266 |

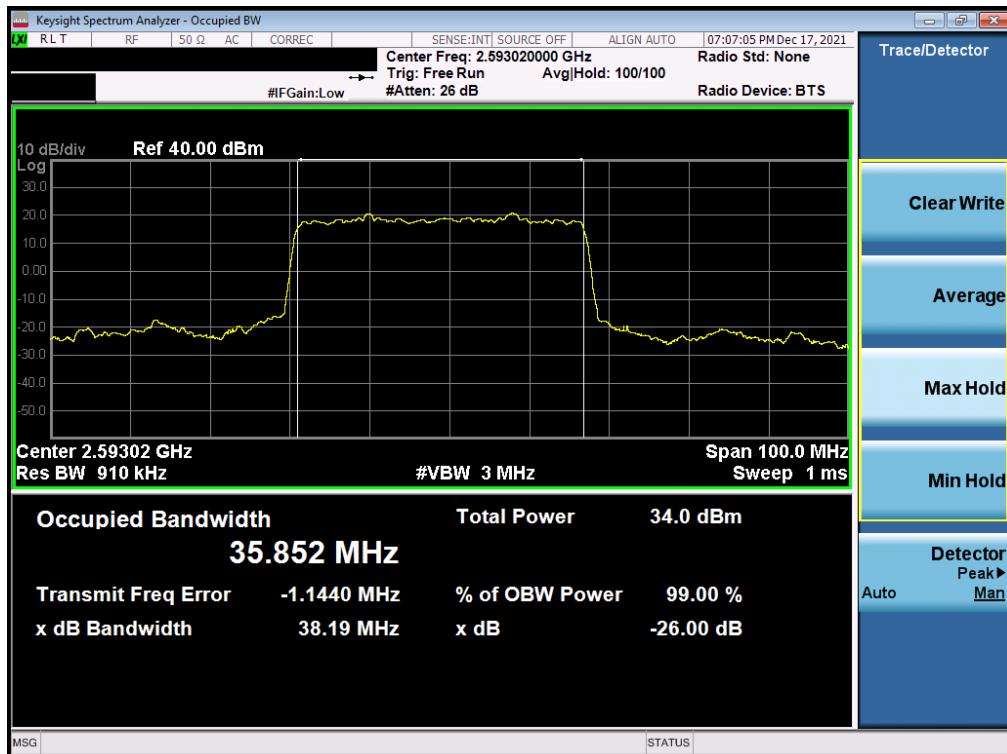


Plot 7-94. Occupied Bandwidth Plot (NR Band n41 - 30MHz CP-OFDM 64QAM - Full RB)



Plot 7-95. Occupied Bandwidth Plot (NR Band n41 - 30MHz CP-OFDM 256QAM - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 64 of 266 |

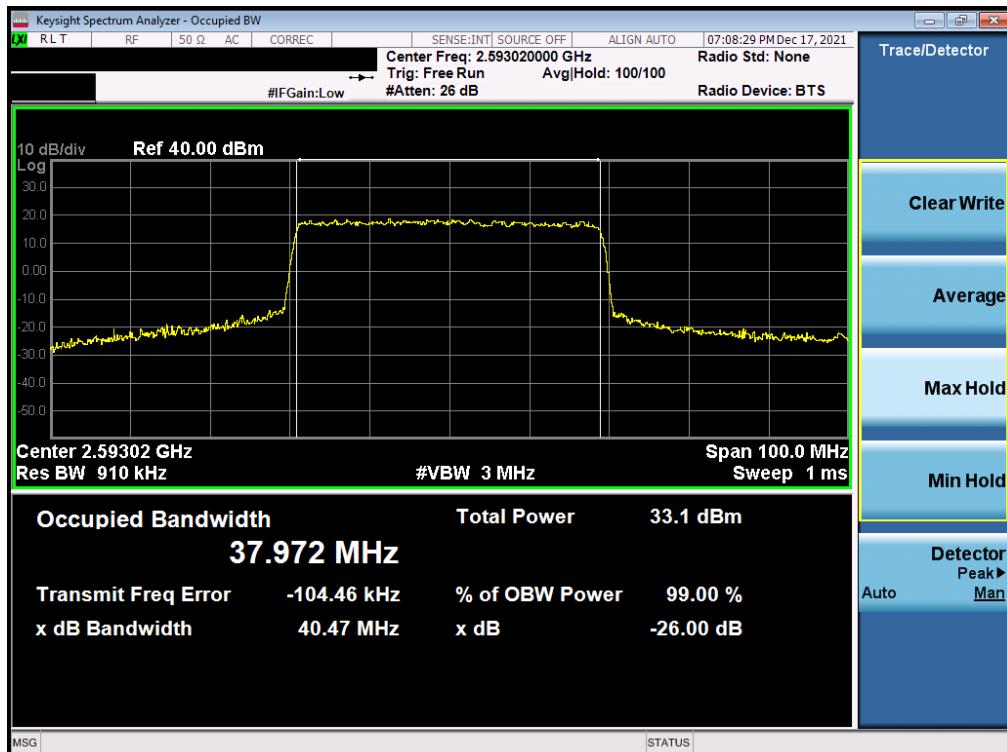


Plot 7-96. Occupied Bandwidth Plot (NR Band n41 - 40MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)



Plot 7-97. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM QPSK - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 65 of 266 |

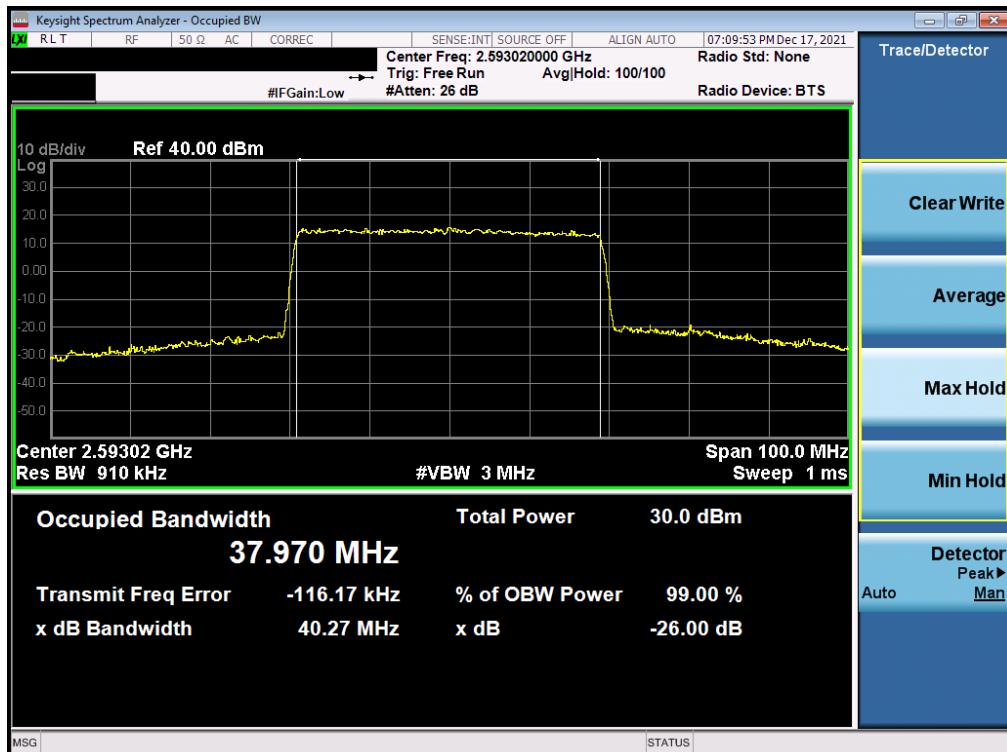


Plot 7-98. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM 16-QAM - Full RB)

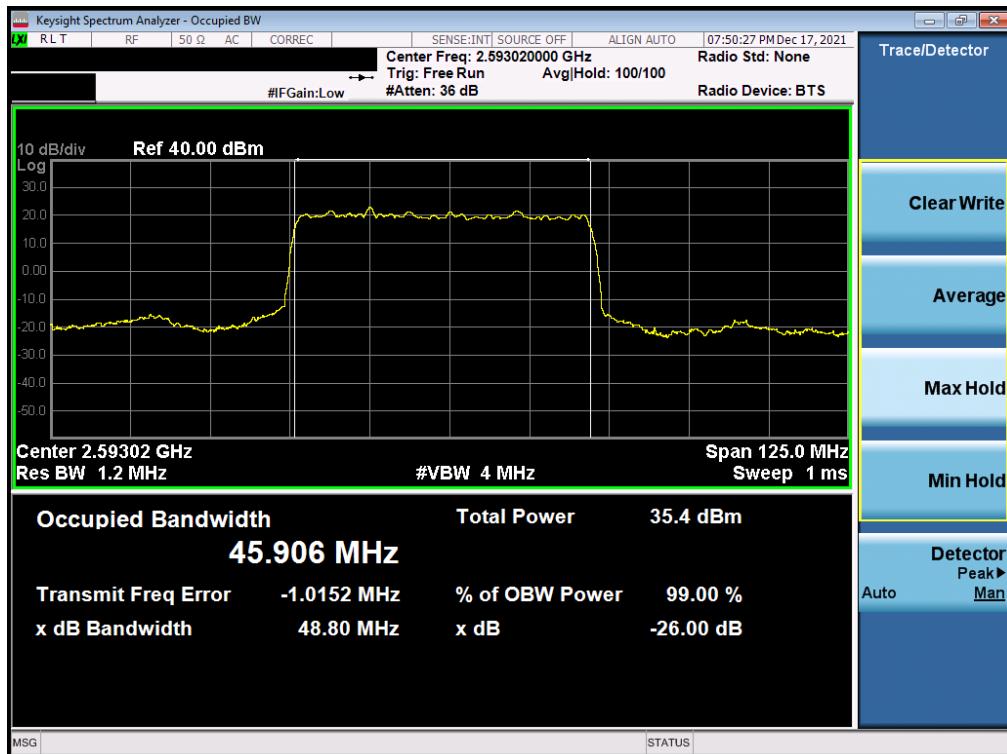


Plot 7-99. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM 64-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 66 of 266 |



Plot 7-100. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM 256-QAM - Full RB)

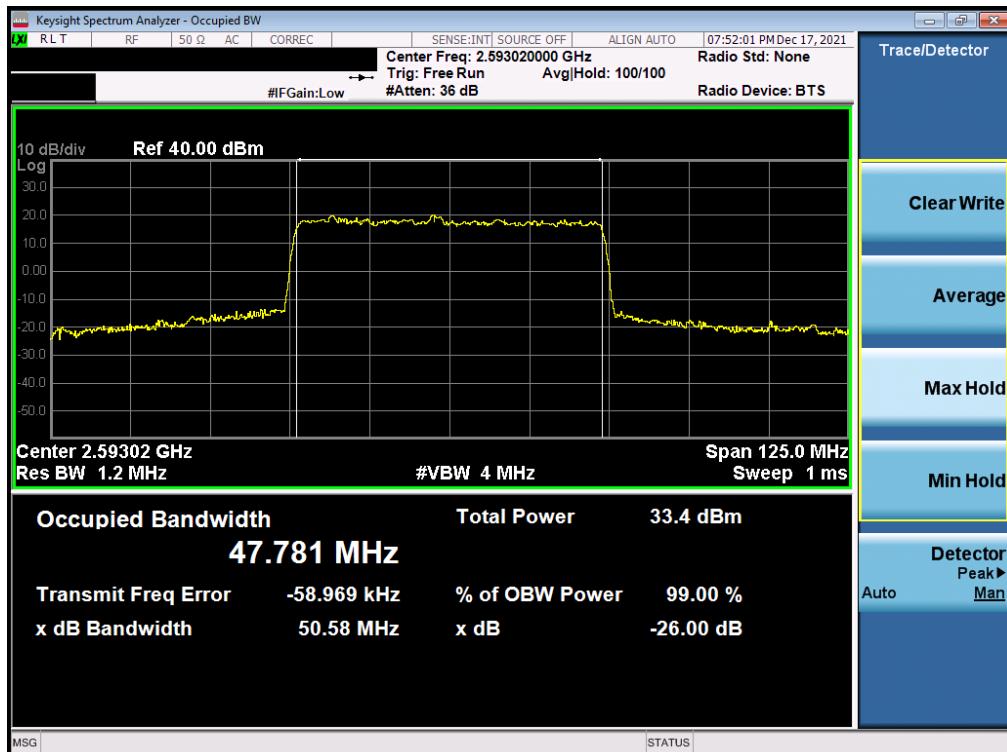


Plot 7-101. Occupied Bandwidth Plot (NR Band n41 - 50MHz DFT-s-OFDM π/2 BPSK - Full RB)

| | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C211150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 67 of 266 |



Plot 7-102. Occupied Bandwidth Plot (NR Band n41 - 50MHz CP-OFDM QPSK - Full RB)



Plot 7-103. Occupied Bandwidth Plot (NR Band n41 - 50MHz CP-OFDM 16-QAM - Full RB)

| | | | | | |
|--|--|----------------------------|--|----------------------------|-----------------------------------|
| FCC ID: BCGA2589 | PCTEST Proud to be part of  | | | PART 27 MEASUREMENT REPORT | Approved by: Technical Manager |
| Test Report S/N: 1C2111150079-04-R1.BCG | Test Dates: 12/2/2021 - 2/16/2022 | EUT Type: Tablet Device | | | Page 68 of 266 |