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# PART 27 MEASUREMENT REPORT

**Applicant Name:**
Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

**Date of Testing:**
10/31/2025 - 12/19/2025
**Test Report Issue Date:**
2/11/2026
**Test Site/Location:**
Element Lab., Columbia, MD, USA
**Test Report Serial No.:**
1M2512010100-08-R1.A3L

| | |
|---|---|
| **FCC ID:** | **A3LSMA576JPN** |
| **APPLICANT:** | **Samsung Electronics Co., Ltd.** |

| | |
|---|---|
| **Application Type:** | Certification |
| **Model:** | SC-54G |
| **EUT Type:** | Portable Handset |
| **FCC Classification:** | PCS Licensed Transmitter Held to Ear (PCE) |
| **FCC Rule Part:** | 27 |
| **Test Procedure(s):** | ANSI C63.26-2015 |

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: 1M2512010100-08-R1.A3L) supersedes and replaces the previously issued test report (S/N: 1M2512010100-08.A3L) 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.

ACCREDITED
CERT #2041.01



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# TEST REPORT REVISION HISTORY

| Rev. No. | Description | Issue Date | Revised By |
|---|---|---|---|
| - | Initial Release | 1/26/2026 | WKR0000005883 |
| 1 | Addressed comments made by TCB reviewer | 2/11/2026 | WKR0000005883 |
| | | | |




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# PART 27 MEASUREMENT REPORT

| Antenna-1 | | | | | | |
|---|---|---|---|---|---|---|
| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | EIRP | | Emission Designator |
| | | | | Max. Power [W] | Max. Power [dBm] | |
| LTE Band 41 (PC3) | 20 MHz | QPSK | 2506.0 - 2680.0 | 0.212 | 23.26 | 18M0G7D |
| | | 16QAM | 2506.0 - 2680.0 | 0.178 | 22.51 | 18M0W7D |
| | 15 MHz | QPSK | 2503.5 - 2682.5 | 0.213 | 23.28 | 13M6G7D |
| | | 16QAM | 2503.5 - 2682.5 | 0.181 | 22.57 | 13M5W7D |
| | 10 MHz | QPSK | 2501.0 - 2685.0 | 0.214 | 23.30 | 9M04G7D |
| | | 16QAM | 2501.0 - 2685.0 | 0.180 | 22.56 | 9M02W7D |
| | 5 MHz | QPSK | 2498.5 - 2687.5 | 0.216 | 23.35 | 4M52G7D |
| | | 16QAM | 2498.5 - 2687.5 | 0.181 | 22.58 | 4M53W7D |

**Overview Table LTE Band Ant 1**



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| Antenna-1 | | | | | | |
|---|---|---|---|---|---|---|
| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | EIRP | | Emission Designator |
| | | | | Max. Power [W] | Max. Power [dBm] | |
| NR Band n41(PC3) | 100 MHz | π/2 BPSK | 2546.0 - 2640.0 | 0.230 | 23.62 | 97M0G7D |
| | | QPSK | 2546.0 - 2640.0 | 0.241 | 23.81 | 98M0G7D |
| | | 16QAM | 2546.0 - 2640.0 | 0.182 | 22.59 | 97M8W7D |
| | 90 MHz | π/2 BPSK | 2541.0 - 2645.0 | 0.231 | 23.63 | 87M3G7D |
| | | QPSK | 2541.0 - 2645.0 | 0.251 | 24.00 | 88M1G7D |
| | | 16QAM | 2541.0 - 2645.0 | 0.188 | 22.75 | 87M8W7D |
| | 80 MHz | π/2 BPSK | 2536.0 - 2650.0 | 0.232 | 23.66 | 77M7G7D |
| | | QPSK | 2536.0 - 2650.0 | 0.252 | 24.01 | 77M8G7D |
| | | 16QAM | 2536.0 - 2650.0 | 0.187 | 22.72 | 77M8W7D |
| | 70 MHz | π/2 BPSK | 2531.0 - 2655.0 | 0.239 | 23.79 | 64M7G7D |
| | | QPSK | 2531.0 - 2655.0 | 0.252 | 24.01 | 64M5G7D |
| | | 16QAM | 2531.0 - 2655.0 | 0.185 | 22.67 | 67M7W7D |
| | 60 MHz | π/2 BPSK | 2526.0 - 2660.0 | 0.237 | 23.74 | 58M4G7D |
| | | QPSK | 2526.0 - 2660.0 | 0.247 | 23.92 | 58M2G7D |
| | | 16QAM | 2526.0 - 2660.0 | 0.193 | 22.85 | 58M2W7D |
| | 50 MHz | π/2 BPSK | 2521.0 - 2665.0 | 0.239 | 23.79 | 46M1G7D |
| | | QPSK | 2521.0 - 2665.0 | 0.252 | 24.01 | 47M9G7D |
| | | 16QAM | 2521.0 - 2665.0 | 0.194 | 22.87 | 47M8W7D |
| | 40 MHz | π/2 BPSK | 2516.0 - 2670.0 | 0.241 | 23.81 | 37M8G7D |
| | | QPSK | 2516.0 - 2670.0 | 0.251 | 23.99 | 38M2G7D |
| | | 16QAM | 2516.0 - 2670.0 | 0.190 | 22.79 | 38M1W7D |
| | 30 MHz | π/2 BPSK | 2511.0 - 2675.0 | 0.236 | 23.73 | 27M9G7D |
| | | QPSK | 2511.0 - 2675.0 | 0.256 | 24.08 | 27M0G7D |
| | | 16QAM | 2511.0 - 2675.0 | 0.193 | 22.86 | 28M1W7D |
| | 20 MHz | π/2 BPSK | 2506.0 - 2680.0 | 0.229 | 23.60 | 18M3G7D |
| | | QPSK | 2506.0 - 2680.0 | 0.251 | 24.00 | 18M4G7D |
| | | 16QAM | 2506.0 - 2680.0 | 0.186 | 22.70 | 18M4W7D |
| | 15 MHz | π/2 BPSK | 2503.5 - 2682.5 | 0.227 | 23.55 | 13M0G7D |
| | | QPSK | 2503.5 - 2682.5 | 0.248 | 23.94 | 13M7G7D |
| | | 16QAM | 2503.5 - 2682.5 | 0.190 | 22.78 | 13M7W7D |
| | 10 MHz | π/2 BPSK | 2501.0 - 2685.0 | 0.221 | 23.44 | 8M74G7D |
| | | QPSK | 2501.0 - 2685.0 | 0.240 | 23.80 | 8M74G7D |
| | | 16QAM | 2501.0 - 2685.0 | 0.187 | 22.72 | 8M70W7D |

**Overview Table NR Band Ant 1**




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| Antenna-2 | | | | | | |
|---|---|---|---|---|---|---|
| Mode | Bandwidth | Modulation | Tx Frequency Range [MHz] | EIRP | | Emission Designator |
| | | | | Max. Power [W] | Max. Power [dBm] | |
| LTE Band 41 (PC3) | 20 MHz | QPSK | 2506.0 - 2680.0 | 0.158 | 21.98 | 18M0G7D |
| | | 16QAM | 2506.0 - 2680.0 | 0.112 | 20.48 | 18M0W7D |
| | 15 MHz | QPSK | 2503.5 - 2682.5 | 0.160 | 22.04 | 13M5G7D |
| | | 16QAM | 2503.5 - 2682.5 | 0.110 | 20.42 | 13M5W7D |
| | 10 MHz | QPSK | 2501.0 - 2685.0 | 0.159 | 22.01 | 9M06G7D |
| | | 16QAM | 2501.0 - 2685.0 | 0.114 | 20.57 | 9M05W7D |
| | 5 MHz | QPSK | 2498.5 - 2687.5 | 0.158 | 21.99 | 4M54G7D |
| | | 16QAM | 2498.5 - 2687.5 | 0.111 | 20.46 | 4M53W7D |

**Overview Table LTE Band Ant 2**




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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 Element Test Location

Measurements were conducted at the Element laboratory(ies) indicated in Section 1.3 below. All measurement facilities are 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 Element lab located in Columbia, MD 21046, U.S.A.**

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- Element Washington DC LLC 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).

- Element Washington DC LLC facility is a registered test laboratory with the site description on file with ISED (Wireless Test Lab number 2451B) and FCC (Designation Number US1113).

- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).




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# 2.0 PRODUCT INFORMATION

## 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMA576JPN**. 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.

This device supports PC3 only and does not implement PC2, whereas FCC ID: A3LSMA576U supports both PC2 and PC3. Accordingly, data referencing was performed using PC3 results, with compliance verified through spot-check evaluation.

The authorization for this device utilize data referencing from FCC ID: A3LSMA576U as permitted per KDB 484596 D01 v03. Data referencing data test results are included in Appendix A of this report.

**Test Device Serial No.:** 3123M, 0837M, 0103M, 1883M, 0116M, 3070M, 2420M, 3095M, 3074M, 0551M, 0113M, 0120M, 0111M

## 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, SCS

This device supports Tx Device Hopping (ANT Switching) for the multiple 5G NR Bands and can operate on two distinct paths. The paths are labeled as either Main or Switching paths. Testing was done on both paths and is included in this report.

| Band | Ant1 | Ant2 |
|---|---|---|
| LTE Band 41 PC3 | Ant B | Ant F |
| NR Band n41 | Ant B | - |

**Table 2-1. Antenna Report Naming Convention**

## 2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26:2015. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

## 2.4 Duty Cycle Information

For all 5G NR and LTE operations in FDD mode, the EUT duty cycle was set to 100%.

For LTE TDD operation, a call box was used to force maximum transmission for each band. For LTE TDD bands, the maximum duty cycle is 63.3% for PC3 and 43.3% for PC2.

## 2.5 Software and Firmware

Testing was performed on device(s) using software/firmware version A576U1UEU0AYJ1 installed on the EUT.



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## 2.6 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 "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26:2015) were used in the measurement of the EUT.

**Deviation from Measurement Procedure……None**

## 3.2 Radiated Power and 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 power measurements, substitution method is used per the guidance of ANSI C63.26:2015. For emissions below 1GHz, a half-wave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\,[dBm]} = P_{g\,[dBm]} - \text{cable loss}_{[dB]} + \text{antenna gain}_{[dBd/dBi]};$$

where $P_d$ is the dipole equivalent power, $P_g$ is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\,[dBm]}$ – cable loss $_{[dB]}$.

For radiated spurious emissions measurements, the field strength conversion method is used per the formulas in Section 5.2.7 of ANSI C63.26:2015. Field Strength (EIRP) is calculated using the following formulas:

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

And

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

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4:2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01 v01r01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26:2015.



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# 4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the $U_{CISPR}$ measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

| Contribution | Expanded Uncertainty (±dB) |
|---|---|
| Conducted Bench Top Measurements | 1.13 |
| Radiated Disturbance (<1GHz) | 4.98 |
| Radiated Disturbance (>1GHz) | 5.07 |
| Radiated Disturbance (>18GHz) | 5.09 |

**Table 4-1. Measurement Uncertainty Budget**




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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 |
|---|---|---|---|---|---|---|
| - | MD 1M 40 | EMC Cable and Switch System | 2/25/2025 | Annual | 2/25/2026 | MD 1M 40 |
| - | AP1-002 | EMC Cable and Switch System | 2/25/2025 | Annual | 2/25/2026 | AP1-002 |
| - | AP2-001 | EMC Cable and Switch System | 2/25/2025 | Annual | 2/25/2026 | AP2-001 |
| - | AP2-002 | EMC Cable and Switch System | 2/25/2025 | Annual | 2/25/2026 | AP2-002 |
| - | ETS-001 | EMC Cable and Switch System | 12/11/2024 | Annual | 12/11/2025 | ETS-001 |
| - | ETS-002 | EMC Cable and Switch System | 12/11/2024 | Annual | 12/11/2025 | ETS-002 |
| - | LTx1 | Licensed Transmitter Cable Set | 2/25/2025 | Annual | 2/25/2026 | LTx1 |
| - | LTx6-40 | Licensed Transmitter Cable Set | 2/25/2025 | Annual | 2/25/2026 | LTx6-40 |
| - | WL40-1 | Conducted Cable Set (40GHz) | 2/25/2025 | Annual | 2/25/2026 | WL40-1 |
| - | WL40-2 | Conducted Cable Set (40GHz) | 2/25/2025 | Annual | 2/25/2026 | WL40-2 |
| - | WL40-3 | Conducted Cable Set (40GHz) | 2/25/2025 | Annual | 2/25/2026 | WL40-3 |
| Agilent | N9038A | MXE EMI Receiver | 11/10/2025 | Annual | 11/10/2026 | MY51210133 |
| Anritsu | MT8000A | Radio Communication Test Station | 6/4/2025 | Annual | 6/4/2026 | 6261914237 |
| Anritsu | MT8000A | Radio Communication Test Station | 3/11/2025 | Annual | 3/11/2026 | 6272337439 |
| Anritsu | MT8821C | Radio Communication Analyze | 9/15/2025 | Annual | 9/15/2026 | 6201381794 |
| Anritsu | MT8821C | Radio Communication Analyze | 3/14/2025 | Annual | 3/14/2026 | 6262044715 |
| EMCO | 3115 | Horn Antenna (1-18GHz) | 9/6/2024 | Biennial | 9/6/2026 | 9704-5182 |
| Espec | ESX-2CA | Environmental Chamber | 11/20/2024 | Biennial | 11/20/2026 | 17620 |
| ETS Lindgren | 3117 | 1-18 GHz DRG Horn (Medium) | 6/4/2025 | Biennial | 6/4/2027 | 125518 |
| ETS-Lindgren | 3116C | DRG Horn Antenna | 4/22/2025 | Biennial | 4/22/2027 | 218893 |
| Keysight Technologies | N9020A | MXA Signal Analyzer (NM) | 6/4/2025 | Annual | 6/4/2026 | MY54500644 |
| Keysight Technologies | N9030A | 3Hz-44GHz PXA Signal Analyzer | 9/15/2025 | Annual | 9/15/2026 | MY49430494 |
| Keysight Technologies | N9030A | PXA Signal Analyzer (OM - EMC) | 6/16/2025 | Annual | 6/16/2026 | MY55410501 |
| Keysight Technologies | N9030A | 3Hz-44GHz PXA Signal Analyzer | 9/15/2025 | Annual | 9/15/2026 | MY49430494 |
| Keysight Technologies | N9020A | MXA Signal Analyzer | 5/7/2025 | Annual | 5/7/2026 | US46470561 |
| Keysight Technologies | N9030A | PXA Signal Analyzer (44GHz) | 6/6/2025 | Annual | 6/6/2026 | MY52350166 |
| Rohde & Schwarz | FSW67 | Signal / Spectrum Analyzer | 5/12/2025 | Annual | 5/12/2026 | 103200 |
| Rohde & Schwarz | ESW44 | EMI Test Receiver 2Hz to 44 GHz | 3/25/2025 | Annual | 3/25/2026 | 101716 |
| Rohde & Schwarz | CMW500 | Wideband Radio Communication Tester | 6/18/2025 | Annual | 6/18/2026 | 140148 |
| Sunol | JB5 | Bi-Log Antenna (30M - 5GHz) | 9/11/2024 | Biennial | 9/11/2026 | A051107 |
| Sunol Sciences | DRH-118 | Horn (Small) | 2/13/2024 | Biennial | 2/13/2026 | A042511 |

**Table 5-1. Test Equipment Calibration Table**

**Notes:**

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

2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.




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| Component | Serial Number |
|---|---|
| MegaPhase Cable, Model: TM40-K1K1-36 | 18160102 001 |
| MCL 10dB Attenuator, Model: BW-K10 2W44+ | 1902 |

**Table 5-2. WL40-1 Conducted Cable Set Components**

| Component | Serial Number |
|---|---|
| MegaPhase Cable, Model: TM40-K1K1-30 | 18165902 001 |
| MCL 10dB Attenuator, Model: BW-K10 2W44+ | 2108 |

**Table 5-3. WL40-2 Conducted Cable Set Components**

| Component | Serial Number |
|---|---|
| MegaPhase Cable, Model: TM40-K1K1-30 | 20335602 001 |
| MCL 10dB Attenuator, Model: BW-K10 2W44+ | 2108 |

**Table 5-4. WL40-3 Conducted Cable Set Components**

| Component | Serial Number |
|---|---|
| Keysight Directional Coupler, Model: 87300C | 55300398 |
| Mini Circuits 6dB Attenuator, BW S6 2W263+ | 2105 |
| MegaPhase Cable, Model: TM26-S1S1-30 | 20233001 004 |

**Table 5-5. LTx1 Licensed Transmitter Cable Set**

| Component | Serial Number |
|---|---|
| Fairview Microwave Directional Coupler, FM2CP1122-10 | 2122 |
| MCL 6dB Attenuator, Model: BW-K6 2W44+ | 2013 |
| MegaPhase Cable, Model: TM40-K1K1-30 | 20233002 003 |

**Table 5-6. LTx6-40 Conducted Cable Set Components**

| Component | Serial Number |
|---|---|
| Pasternack Cable RG214/U | 111815 |
| MegaPhase (CAGE 1GVT4) Cable GR18-N5N5-24 | 14042714 001 |

**Table 5-7. ETS-001 EMC Cable and Switch System Components**

| Component | Serial Number |
|---|---|
| MegaPhase (CAGE 1GVT4) Cable GR18-N5N5-24 | 14042714 001 |
| MegaPhase (CAGE 1GVT4) Cable NC29-N1N1-324 | 20502201 001 |
| Rohde & Schwarz SF Unit | 102134 |
| Minicircuits Cable CBL=0.5M-NMNM+ | 15440 |

**Table 5-8. ETS-002 EMC Cable and Switch System Components**




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| Component | Serial Number |
|---|---|
| Sucoflex 106A Cable | 501992 |
| MegaPhase Cable N29-N1N1-324 | 20335606 001 |
| Rohde & Schwarz SF Unit | 102133 |
| MiniCircuits Cable CBL-2FT-SMSM+ | 77745 |
| MegaPhase Cable 10511-1 | 15034701 001 |
| MiniCircuits Switch RC 2SPDT-A18 | 11703270 041 |
| Sucoflex 104 Cable | 320259/4 |
| Sucoflex 104 Cable | 321999/4 |
| Sucoflex 104 Cable | 321995/4 |

**Table 5-9. AP1-002 EMC Cable and Switch System Components**

| Component | Serial Number |
|---|---|
| Flex Cable | P2A-0001 |
| Micro-Coax Utilfex Cable UFB311A-Q-3346-50U50U MFR 64639 | 231978-003 |
| Chamber Passthrough | CP4/X12 |
| Micro-Coax Utilfex Cable UFB311A-1-0629-50U50U MFR 64639 | 231986-003 |
| Micro-Coax Utiflex Cable UFB142A-0-0629-5GU200 MFR 6463 | 232069-001 |
| Rohde & Schwarz TS-PR8 Pre-Amplifier | 102335 |
| Rohde & Schwarz OSP130 Open Switch and Control Unit | 101181 |

**Table 5-10. AP2-001 EMC Cable and Switch System Components**

| Component | Serial Number |
|---|---|
| MiniCircuits Cable CBL-0.5M-SMNM+ | 47261 |
| Micro-Coax Utilfex Cable UFB311A-Q-3346-50U50U MFR 64639 | 231978-001 |
| Micro-Coax Utilfex Cable UFB311A-1-0629-50U50U MFR 64639 | 231986-002 |
| MegaPhase (CAGE 1GVT4) Cable NC29-N1N1-324 | 19046401 001 |
| Megaphase (CAGE 1GVT4) Flex Cable 10511-1 | 15044701-006 |
| Micro-Coax Utiflex Cable UFB311A-Q-3346-50U50U MFR 64639 | 231978-002 |
| Micro-Coax Utilfex Cable UFB311A-1-0629-50U50U MFR 64639 | 231986-004 |
| Micro-Coax Utiflex Cable UFB142A-0-0629-5GU200 MFR 64639 | 232069-001 |
| Rohde & Schwarz SF Unit | 102138 |
| Rohde & Schwarz OSP130 Open Switch and Control Unit | 101181 |
| Micro-Coax Utilfex Cable UFB311A-Q-3346-50U50U MFR 64639 | 231978-003 |
| · Micro-Coax Utilfex Cable UFB311A-1-0629-50U50U MFR 64639 | 231986-003 |
| Rohde & Schwarz TS-PR8 Pre-Amplifier | 102335 |

**Table 5-11. AP2-002 EMC Cable and Switch System Components**

| Component | Serial Number |
|---|---|
| MegaPhase Cable TM40-K1K1-30 | 20233002-004 |
| UTIPLEX Cable, 64639 | 232063-001 |
| Rohde & Schwarz Pre-amp TS-PR1840 18G-40G | 9037.7670.02 |

**Table 5-12. MD 1M 18-40 EMC Cable and Switch System Components**




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# 6.0 SAMPLE EMISSION DESIGNATORS

## QPSK Modulation

**Emission Designator = 8M62G7D**
LTE BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

## QAM Modulation

**Emission Designator = 8M45W7D**
LTE BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand



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# 7.0 TEST RESULTS

## 7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
FCC ID: A3LSMA576JPN
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
Mode(s): LTE/NR

| Test Condition | Test Description | FCC Part Section(s) | Test Limit | Test Result | Reference | Data Referencing |
|---|---|---|---|---|---|---|
| CONDUCTED | Transmitter Conducted Output Power* | 2.1046(a), 2.1046(c) | N/A | PASS | Section 7.2 | Yes |
| | Occupied Bandwidth | 2.1049(h) | N/A | PASS | Section 7.3 | Yes |
| | Conducted Band Edge / Spurious Emissions (LTE Band 41; NR Band n41) | 2.1051, 27.53(m)(4) | Undesirable emissions must meet the limits detailed in 27.53(m)(4) | PASS | Sections 7.4, 7.5 | Yes |
| | Frequency Stability (LTE Band 41; NR Band n41) | 2.1055, 27.54 | Fundamental emissions stay within authorized frequency block | PASS | Section 7.8 | Yes |
| RADIATED | Equivalent Isotropic Radiated Power (LTE Band 41; NR Band n41) | 27.50(h)(2) | ≤ 2 Watts max. EIRP | PASS | Section 7.6 | Yes |
| | Radiated Spurious Emissions (LTE Band 41; NR Band n41) | 2.1053, 27.53(m) | Undesirable emissions must meet the limits detailed in 27.53(m) | PASS | Section 7.7 | Yes |

* The only transmitter output conducted powers included in this report are those where the Pmax value, per the tune-up document, is higher than any of the DSI power levels. For the remaining conducted power measurements, see the **RF Exposure Report**.

**Table 7-1. Summary of Test Results**

**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 is EMC Software Tool v2.3.0.
5) Data was referenced from model SM-A576U1 for the certification of SC-54G. See Section 9.0 for spotcheck results



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## 7.2 Conducted Output Power Data

**Test Overview**

All emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

A-MPR is implemented in this device when operating at Power Class 2 in LTE Band 41 per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

**Test Procedure Used**

ANSI C63.26:2015 – Section 5.2

**Test Settings**

1. Span = 2 x OBW to 3 x OBW
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

**Test Setup**

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

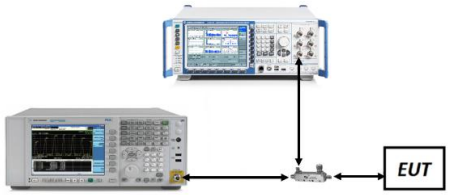


**Figure 7-1. Test Instrument & Measurement Setup**

**Test Notes**

1. Conducted power measurements were evaluated using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

2. All other conducted power measurements are contained in the RF exposure report for this filing.

3. Conducted power was found to reduce for the higher order QAM modulations when compared to 16QAM. Due to this trend, only the worst-case QAM (16QAM) powers are included in this section.



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| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 20 MHz | QPSK | 39750 | 2506.0 | 1 / 0 | 23.99 |
| | | 40620 | 2593.0 | 1 / 0 | 23.29 |
| | | 41490 | 2680.0 | 1 / 99 | 23.28 |
| | 16-QAM | 40620 | 2593.0 | 1 / 0 | 21.33 |
| 15 MHz | QPSK | 39725 | 2503.5 | 1 / 0 | 24.00 |
| | | 40620 | 2593.0 | 1 / 0 | 23.31 |
| | | 41515 | 2682.5 | 1 / 74 | 23.28 |
| | 16-QAM | 40620 | 2593.0 | 1 / 0 | 21.39 |
| 10 MHz | QPSK | 39700 | 2501.0 | 1 / 0 | 23.98 |
| | | 40620 | 2593.0 | 1 / 0 | 23.33 |
| | | 41540 | 2685.0 | 1 / 0 | 23.31 |
| | 16-QAM | 40620 | 2593.0 | 1 / 0 | 21.38 |
| 5 MHz | QPSK | 39675 | 2498.5 | 1 / 24 | 23.97 |
| | | 40620 | 2593.0 | 1 / 24 | 23.38 |
| | | 41565 | 2687.5 | 1 / 0 | 23.29 |
| | 16-QAM | 40620 | 2593.0 | 1 / 24 | 21.40 |

**Table 7-2. Conducted Power Results – LTE Band 41(PC3) – Ant1**

| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 20 MHz | QPSK | 39750 | 2506.0 | 1 / 0 | 22.89 |
| | | 40620 | 2593.0 | 1 / 99 | 23.13 |
| | | 41490 | 2680.0 | 1 / 0 | 23.15 |
| | 16-QAM | 40620 | 2593.0 | 1 / 99 | 22.16 |
| 15 MHz | QPSK | 39725 | 2503.5 | 1 / 0 | 23.02 |
| | | 40620 | 2593.0 | 1 / 74 | 23.19 |
| | | 41515 | 2682.5 | 1 / 37 | 23.03 |
| | 16-QAM | 40620 | 2593.0 | 1 / 74 | 22.10 |
| 10 MHz | QPSK | 39700 | 2501.0 | 1 / 0 | 23.02 |
| | | 40620 | 2593.0 | 1 / 49 | 23.09 |
| | | 41540 | 2685.0 | 1 / 0 | 23.18 |
| | 16-QAM | 40620 | 2593.0 | 1 / 49 | 22.25 |
| 5 MHz | QPSK | 39675 | 2498.5 | 1 / 0 | 23.00 |
| | | 40620 | 2593.0 | 1 / 24 | 23.09 |
| | | 41565 | 2687.5 | 1 / 0 | 23.13 |
| | 16-QAM | 40620 | 2593.0 | 1 / 24 | 22.14 |

**Table 7-3. Conducted Power Results – LTE Band 41(PC3) – Ant2**




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| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 100 MHz | π/2 BPSK | 509202 | 2546.01 | 1 / 1 | 23.82 |
| | | 518598 | 2592.99 | 1 / 136 | 23.75 |
| | | 528000 | 2640.00 | 1 / 136 | 23.75 |
| | QPSK | 509202 | 2546.01 | 1 / 1 | 23.97 |
| | | 518598 | 2592.99 | 1 / 136 | 23.91 |
| | | 528000 | 2640.00 | 1 / 136 | 23.70 |
| | 16-QAM | 528000 | 2640.00 | 1 / 136 | 22.41 |
| 90 MHz | π/2 BPSK | 508200 | 2541.00 | 1 / 122 | 23.84 |
| | | 518598 | 2592.99 | 1 / 122 | 23.74 |
| | | 528996 | 2644.98 | 1 / 122 | 23.76 |
| | QPSK | 508200 | 2541.00 | 1 / 1 | 23.91 |
| | | 518598 | 2592.99 | 1 / 122 | 23.90 |
| | | 528996 | 2644.98 | 1 / 122 | 23.89 |
| | 16-QAM | 528996 | 2644.98 | 1 / 122 | 22.57 |
| 80 MHz | π/2 BPSK | 507204 | 2536.02 | 1 / 1 | 23.82 |
| | | 518598 | 2592.99 | 1 / 108 | 23.76 |
| | | 529998 | 2649.99 | 1 / 108 | 23.79 |
| | QPSK | 507204 | 2536.02 | 1 / 1 | 23.93 |
| | | 518598 | 2592.99 | 1 / 108 | 23.86 |
| | | 529998 | 2649.99 | 1 / 108 | 23.90 |
| | 16-QAM | 529998 | 2649.99 | 1 / 108 | 22.54 |
| 70 MHz | π/2 BPSK | 506202 | 2531.01 | 1 / 1 | 23.80 |
| | | 518598 | 2592.99 | 1 / 94 | 23.75 |
| | | 531000 | 2655.00 | 1 / 94 | 23.92 |
| | QPSK | 506202 | 2531.01 | 1 / 1 | 23.92 |
| | | 518598 | 2592.99 | 1 / 94 | 23.86 |
| | | 531000 | 2655.00 | 1 / 94 | 23.90 |
| | 16-QAM | 531000 | 2655.00 | 1 / 94 | 22.49 |
| 60 MHz | π/2 BPSK | 505200 | 2526.00 | 1 / 1 | 23.76 |
| | | 518598 | 2592.99 | 1 / 81 | 23.78 |
| | | 531996 | 2659.98 | 1 / 81 | 23.87 |
| | QPSK | 505200 | 2526.00 | 1 / 1 | 23.93 |
| | | 518598 | 2592.99 | 1 / 81 | 23.99 |
| | | 531996 | 2659.98 | 1 / 81 | 23.81 |
| | 16-QAM | 531996 | 2659.98 | 1 / 81 | 22.67 |
| 50 MHz | π/2 BPSK | 504204 | 2521.02 | 1 / 66 | 23.91 |
| | | 518598 | 2592.99 | 1 / 66 | 23.71 |
| | | 532998 | 2664.99 | 1 / 66 | 23.92 |
| | QPSK | 504204 | 2521.02 | 1 / 1 | 23.98 |
| | | 518598 | 2592.99 | 1 / 66 | 23.88 |
| | | 532998 | 2664.99 | 1 / 66 | 23.90 |
| | 16-QAM | 532998 | 2664.99 | 1 / 66 | 22.69 |



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| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 40 MHz | π/2 BPSK | 503202 | 2516.01 | 1 / 53 | 23.70 |
| | | 518598 | 2592.99 | 1 / 53 | 23.86 |
| | | 534000 | 2670.00 | 1 / 53 | 23.94 |
| | QPSK | 503202 | 2516.01 | 1 / 53 | 23.72 |
| | | 518598 | 2592.99 | 1 / 53 | 23.92 |
| | | 534000 | 2670.00 | 1 / 53 | 23.88 |
| | 16-QAM | 534000 | 2670.00 | 1 / 53 | 22.61 |
| 30 MHz | π/2 BPSK | 502200 | 2511.00 | 1 / 39 | 23.74 |
| | | 518598 | 2592.99 | 1 / 39 | 23.85 |
| | | 534996 | 2674.98 | 1 / 39 | 23.86 |
| | QPSK | 502200 | 2511.00 | 1 / 76 | 23.78 |
| | | 518598 | 2592.99 | 1 / 39 | 23.93 |
| | | 534996 | 2674.98 | 1 / 39 | 23.97 |
| | 16-QAM | 534996 | 2674.98 | 1 / 39 | 22.68 |
| 20 MHz | π/2 BPSK | 501204 | 2506.02 | 1 / 49 | 23.69 |
| | | 518598 | 2592.99 | 1 / 25 | 23.73 |
| | | 535998 | 2679.99 | 1 / 1 | 23.73 |
| | QPSK | 501204 | 2506.02 | 1 / 49 | 23.74 |
| | | 518598 | 2592.99 | 1 / 25 | 23.88 |
| | | 535998 | 2679.99 | 1 / 1 | 23.89 |
| | 16-QAM | 535998 | 2679.99 | 1 / 1 | 22.52 |
| 15 MHz | π/2 BPSK | 500706 | 2503.50 | 1 / 19 | 23.65 |
| | | 518598 | 2592.99 | 1 / 19 | 23.81 |
| | | 536449 | 2682.50 | 1 / 1 | 23.68 |
| | QPSK | 500706 | 2503.50 | 1 / 19 | 23.68 |
| | | 518598 | 2592.99 | 1 / 19 | 23.98 |
| | | 536449 | 2682.50 | 1 / 1 | 23.83 |
| | 16-QAM | 500706 | 2503.50 | 1 / 19 | 22.88 |
| 10 MHz | π/2 BPSK | 500208 | 2501.00 | 1 / 22 | 23.79 |
| | | 518598 | 2592.99 | 1 / 12 | 23.83 |
| | | 537000 | 2685.00 | 1 / 1 | 23.53 |
| | QPSK | 500208 | 2501.00 | 1 / 22 | 23.84 |
| | | 518598 | 2592.99 | 1 / 12 | 23.99 |
| | | 537000 | 2685.00 | 1 / 1 | 23.69 |
| | 16-QAM | 500208 | 2501.00 | 1 / 12 | 22.82 |

**Table 7-4. Conducted Power Results – NR Band n41 PC3 – Ant1**




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| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 100 MHz | π/2 BPSK | 509202 | 2546.01 | 1 / 136 | 22.85 |
| | | 518598 | 2592.99 | 1 / 136 | 23.16 |
| | | 528000 | 2640.00 | 1 / 136 | 22.53 |
| | QPSK | 509202 | 2546.01 | 1 / 136 | 22.49 |
| | | 518598 | 2592.99 | 1 / 136 | 22.96 |
| | | 528000 | 2640.00 | 1 / 136 | 22.24 |
| | 16-QAM | 509202 | 2546.01 | 1 / 136 | 22.99 |
| | | 518598 | 2592.99 | 1 / 136 | 23.31 |
| | | 528000 | 2640.00 | 1 / 136 | 22.57 |

**Table 7-5. Conducted Power Results – NR Band n41 PC3 – Ant2**

| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 100 MHz | π/2 BPSK | 509202 | 2546.01 | 1 / 136 | 23.18 |
| | | 518598 | 2592.99 | 1 / 136 | 23.58 |
| | | 528000 | 2640.00 | 1 / 136 | 23.20 |
| | QPSK | 509202 | 2546.01 | 1 / 136 | 22.80 |
| | | 518598 | 2592.99 | 1 / 136 | 23.25 |
| | | 528000 | 2640.00 | 1 / 136 | 22.79 |
| | 16-QAM | 509202 | 2546.01 | 1 / 136 | 23.23 |
| | | 518598 | 2592.99 | 1 / 136 | 23.60 |
| | | 528000 | 2640.00 | 1 / 136 | 23.26 |

**Table 7-6. Conducted Power Results – NR Band n41 PC3 – Ant3**

| Bandwidth | Modulation | Channel | Frequency [MHz] | RB Size/Offset | Conducted Power [dBm] |
|---|---|---|---|---|---|
| 100 MHz | π/2 BPSK | 509202 | 2546.01 | 1 / 136 | 22.15 |
| | | 518598 | 2592.99 | 1 / 136 | 22.63 |
| | | 528000 | 2640.00 | 1 / 136 | 22.22 |
| | QPSK | 509202 | 2546.01 | 1 / 136 | 21.76 |
| | | 518598 | 2592.99 | 1 / 136 | 22.31 |
| | | 528000 | 2640.00 | 1 / 136 | 21.87 |
| | 16-QAM | 509202 | 2546.01 | 1 / 136 | 22.24 |
| | | 518598 | 2592.99 | 1 / 136 | 22.66 |
| | | 528000 | 2640.00 | 1 / 136 | 22.24 |

**Table 7-7. Conducted Power Results – NR Band n41 PC3 – Ant4**



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## 7.3 Occupied Bandwidth

**Test Overview**

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

**Test Procedure Used**

ANSI C63.26:2015 – Section 5.4.4

**Test Settings**

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

**Test Setup**

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

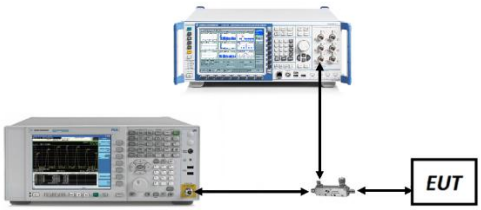


**Figure 7-2. Test Instrument & Measurement Setup**

**Test Notes**

None.



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| Mode | Bandwidth | Modulation | OBW [MHz] |
|---|---|---|---|
| LTE-B41 PC3 | 20MHz | QPSK | 17.98 |
| | | 16QAM | 18.03 |
| | 15MHz | QPSK | 13.56 |
| | | 16QAM | 13.52 |
| | 10MHz | QPSK | 9.04 |
| | | 16QAM | 9.02 |
| | 5MHz | QPSK | 4.52 |
| | | 16QAM | 4.53 |

**Table 7-8. Occupied Bandwidth Test Results – LTE – Ant 1**



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| Mode | Bandwidth | Modulation | OBW [MHz] |
|---|---|---|---|
| NR-n41PC3 | 100MHz | π/2 BPSK | 97.03 |
| | | QPSK | 97.97 |
| | | 16QAM | 97.76 |
| | 90MHz | π/2 BPSK | 87.35 |
| | | QPSK | 88.06 |
| | | 16QAM | 87.84 |
| | 80MHz | π/2 BPSK | 77.71 |
| | | QPSK | 77.82 |
| | | 16QAM | 77.83 |
| | 70MHz | π/2 BPSK | 64.69 |
| | | QPSK | 64.55 |
| | | 16QAM | 67.67 |
| | 60MHz | π/2 BPSK | 58.38 |
| | | QPSK | 58.20 |
| | | 16QAM | 58.25 |
| | 50MHz | π/2 BPSK | 46.10 |
| | | QPSK | 47.88 |
| | | 16QAM | 47.79 |
| | 40MHz | π/2 BPSK | 37.80 |
| | | QPSK | 38.15 |
| | | 16QAM | 38.10 |
| | 30MHz | π/2 BPSK | 27.86 |
| | | QPSK | 27.01 |
| | | 16QAM | 28.12 |
| | 20MHz | π/2 BPSK | 18.31 |
| | | QPSK | 18.40 |
| | | 16QAM | 18.42 |
| | 15MHz | π/2 BPSK | 13.04 |
| | | QPSK | 13.72 |
| | | 16QAM | 13.71 |
| | 10MHz | π/2 BPSK | 8.74 |
| | | QPSK | 8.74 |
| | | 16QAM | 8.70 |

**Table 7-9. Occupied Bandwidth Test Results – NR – Ant 1**



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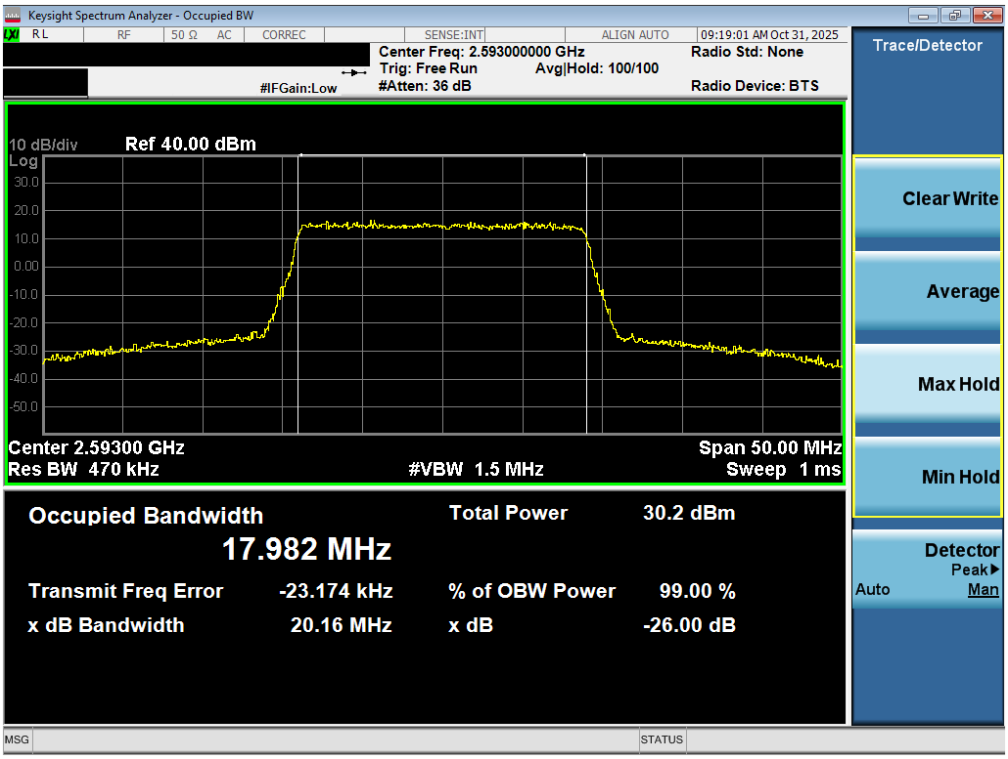
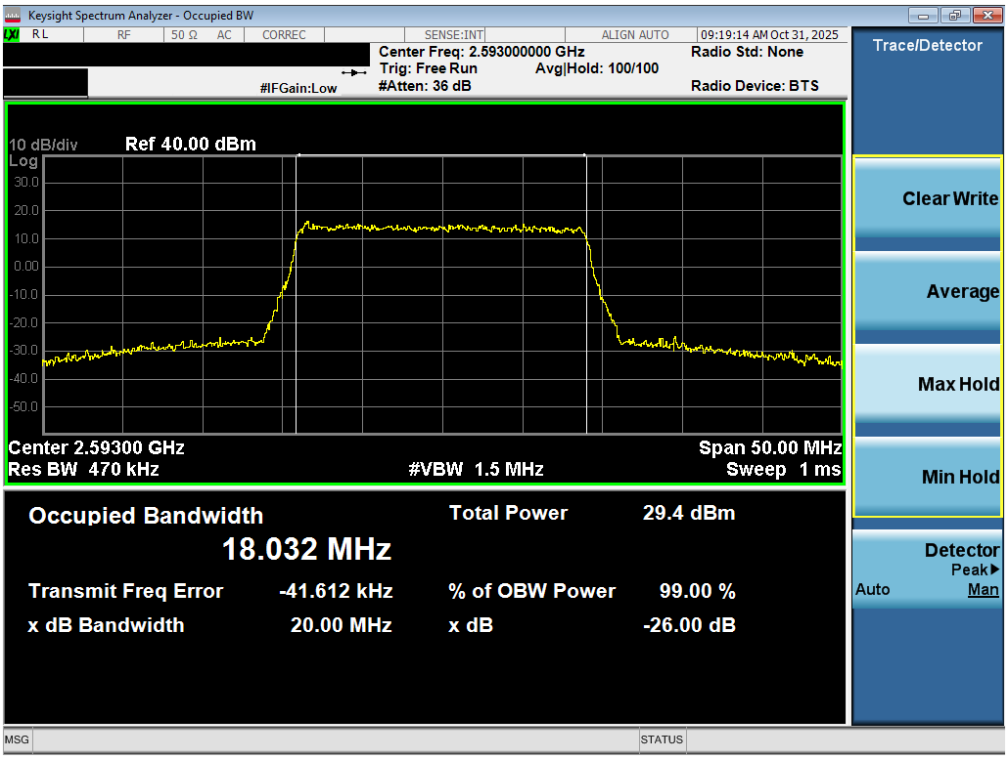
## LTE Band 41(PC3)– Ant1




Plot 7-1. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz QPSK - Full RB - Ant1)




Plot 7-2. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz 16-QAM - Full RB - Ant1)

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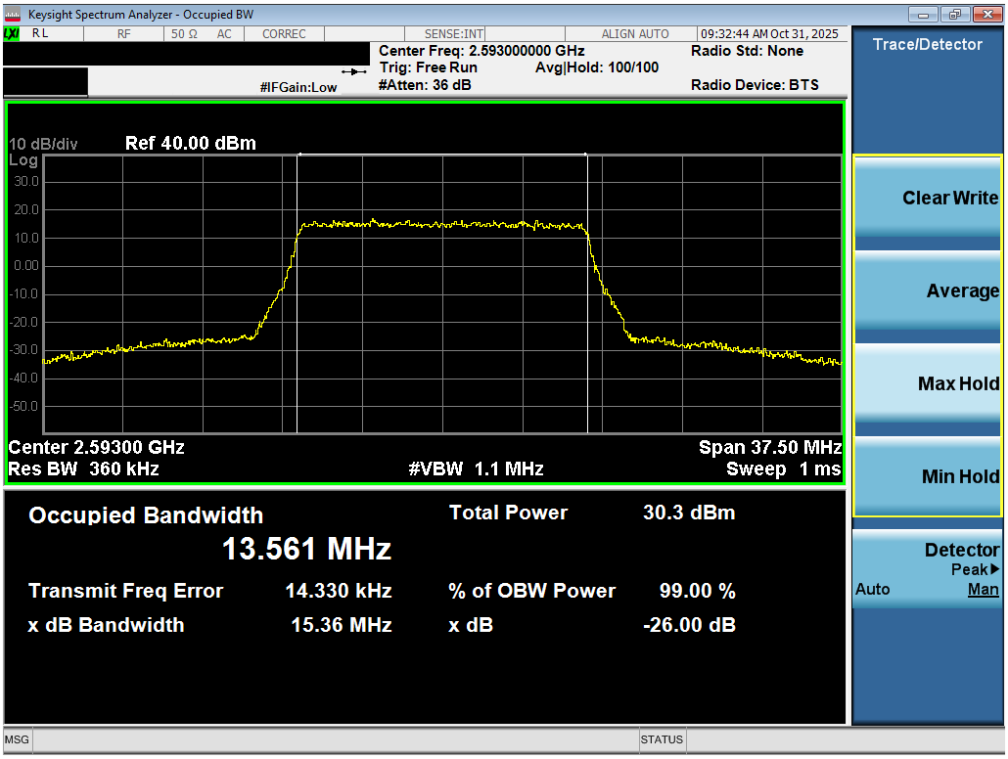
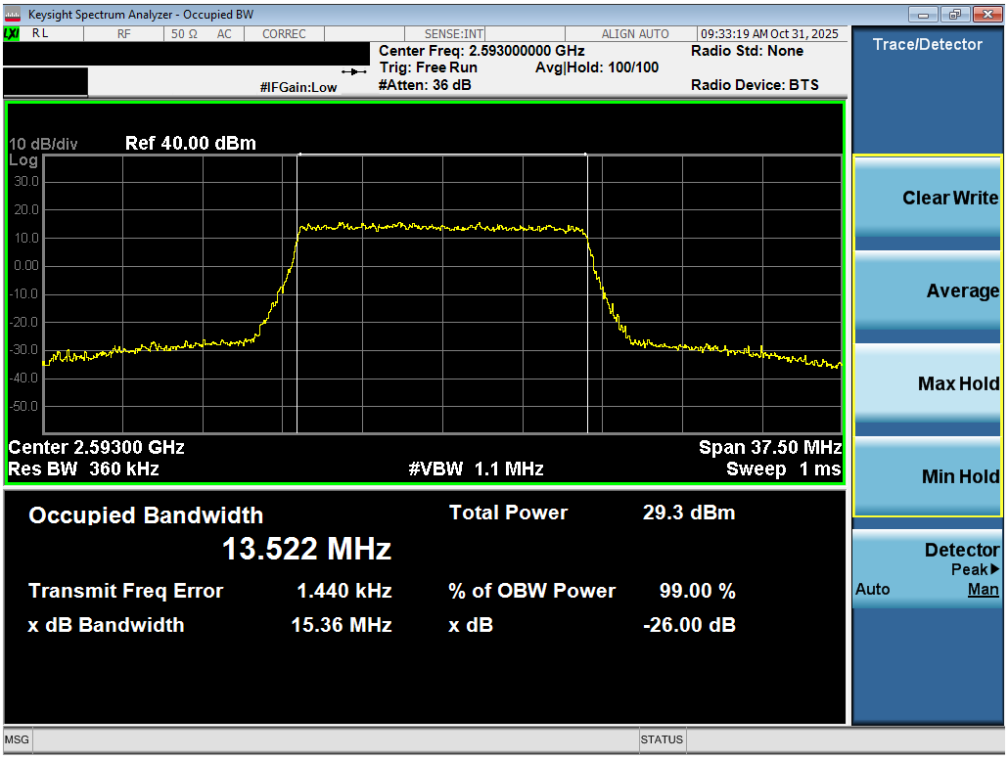



**Plot 7-3. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz QPSK - Full RB - Ant1)**




**Plot 7-4. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz 16-QAM - Full RB - Ant1)**

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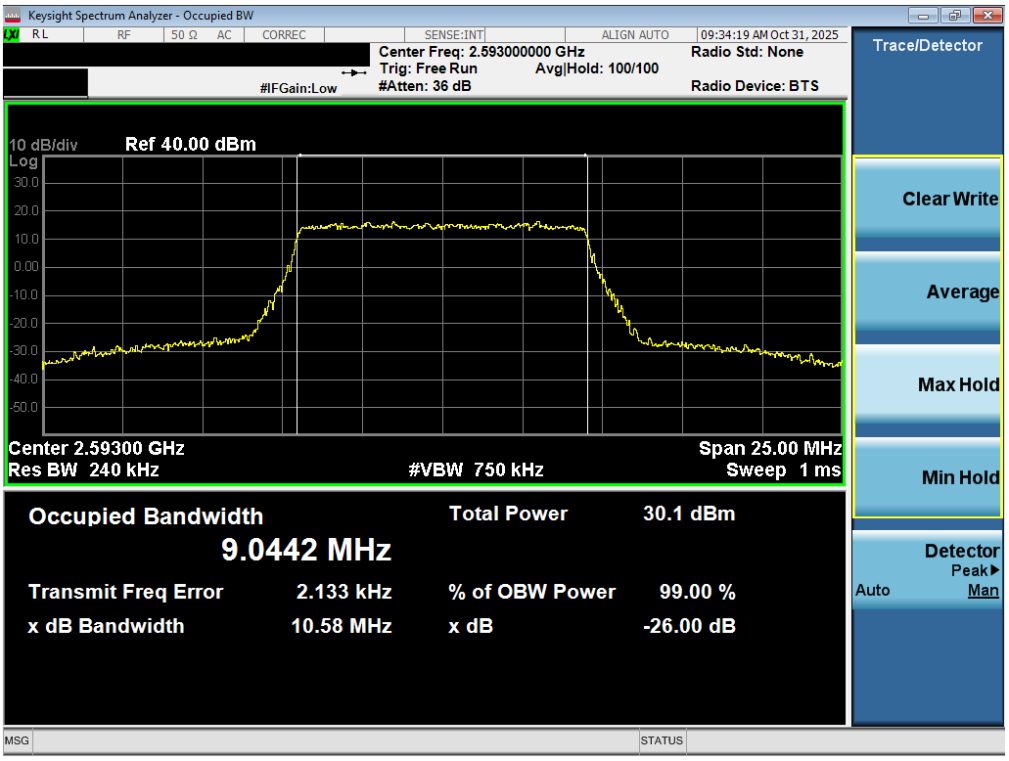
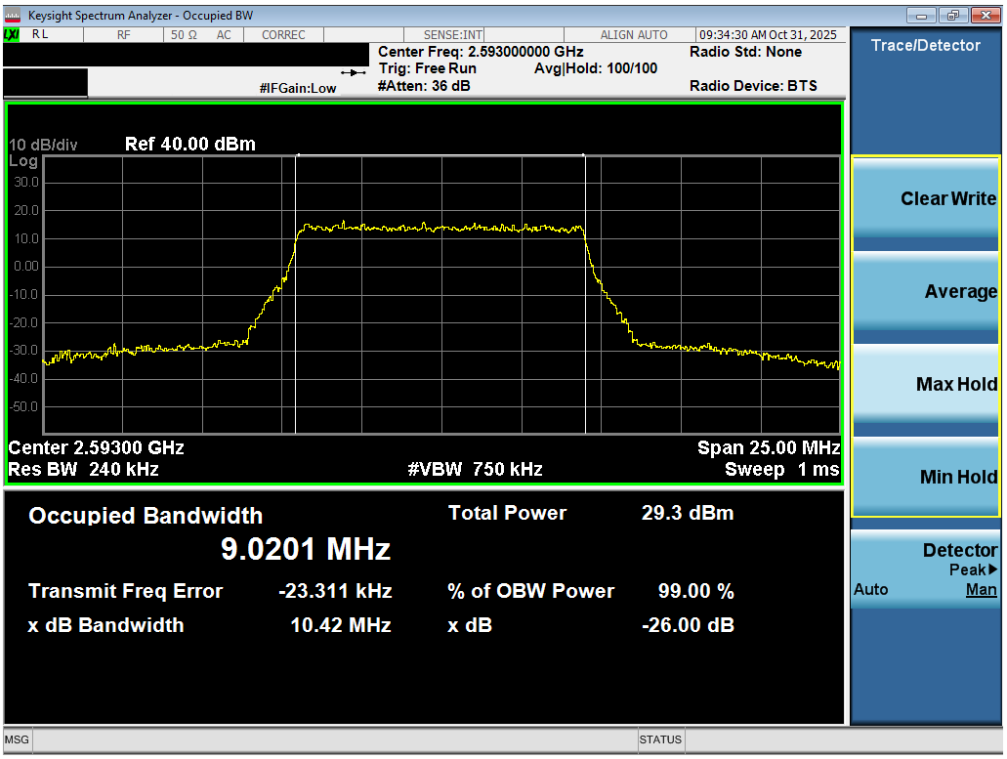



**Plot 7-5. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz QPSK - Full RB - Ant1)**




**Plot 7-6. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz 16-QAM - Full RB - Ant1)**

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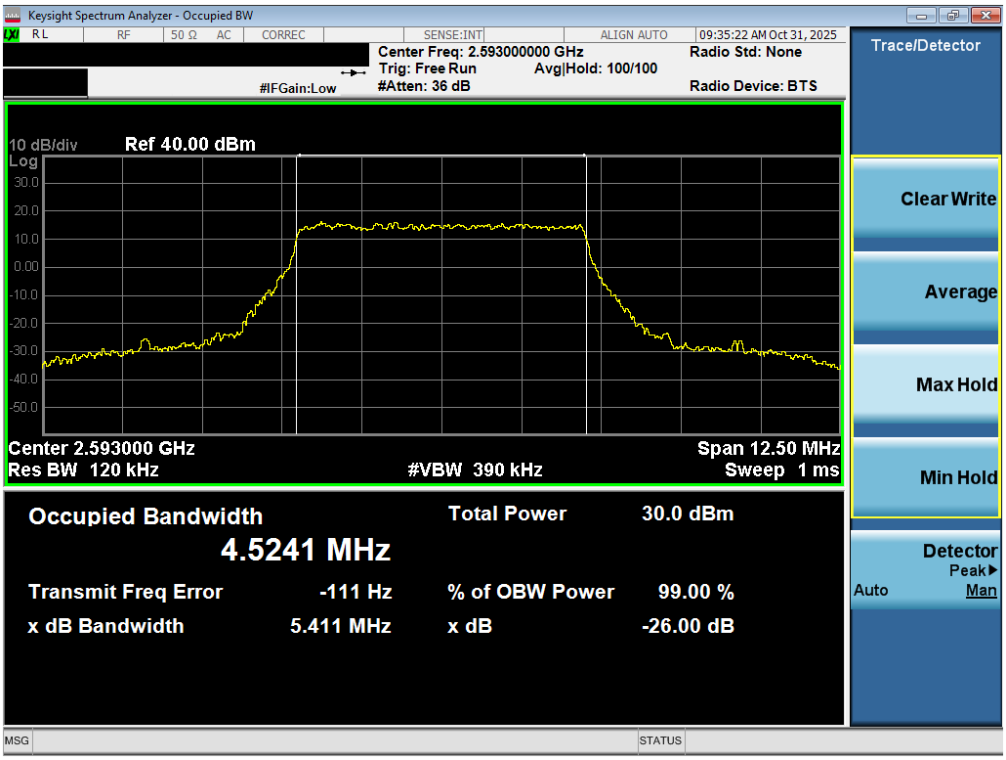
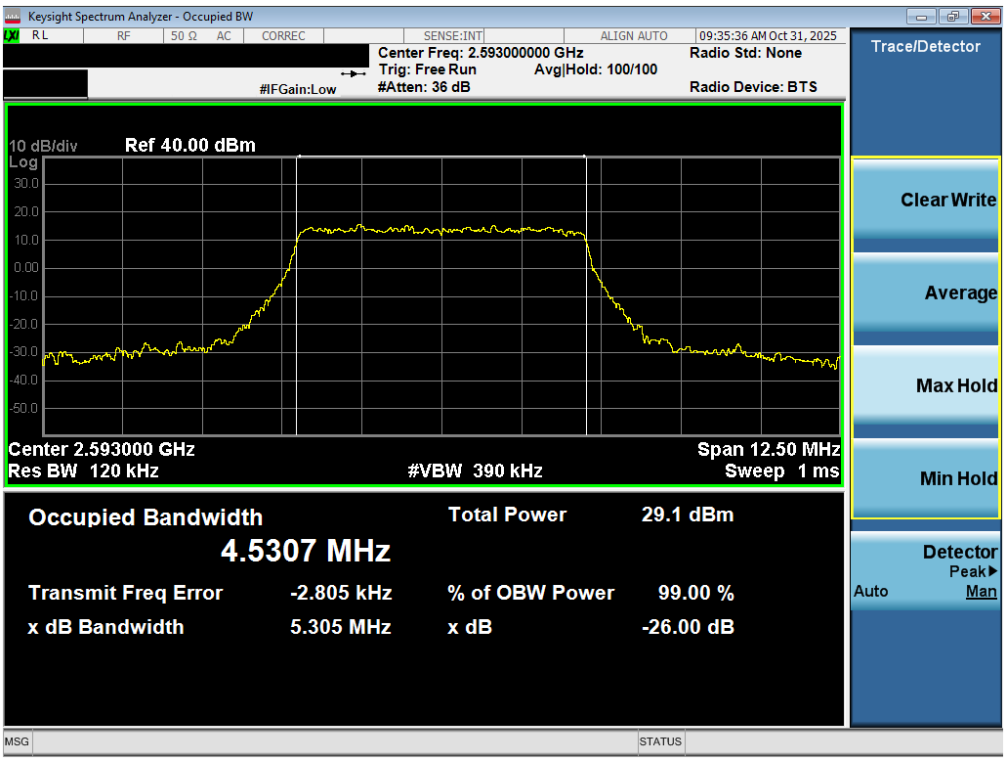



**Plot 7-7. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz QPSK - Full RB - Ant1)**




**Plot 7-8. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz 16-QAM - Full RB - Ant1)**

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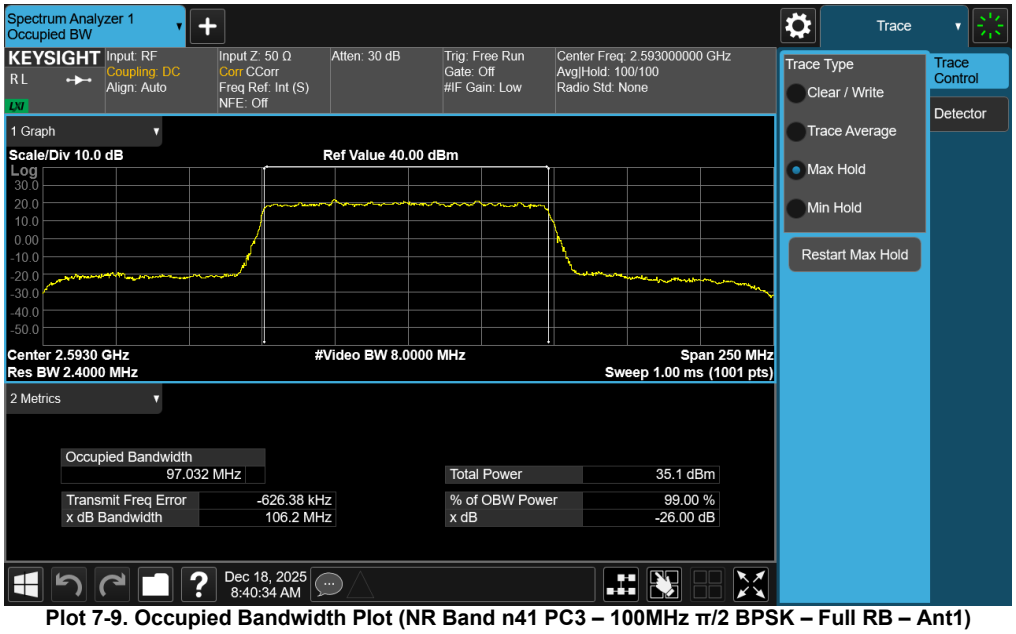
## NR Band n41 PC3 – Ant1




**Plot 7-9. Occupied Bandwidth Plot (NR Band n41 PC3 – 100MHz π/2 BPSK – Full RB – Ant1)**

**Plot 7-10. Occupied Bandwidth Plot (NR Band n41 PC3 – 100MHz QPSK – Full RB – Ant1)**

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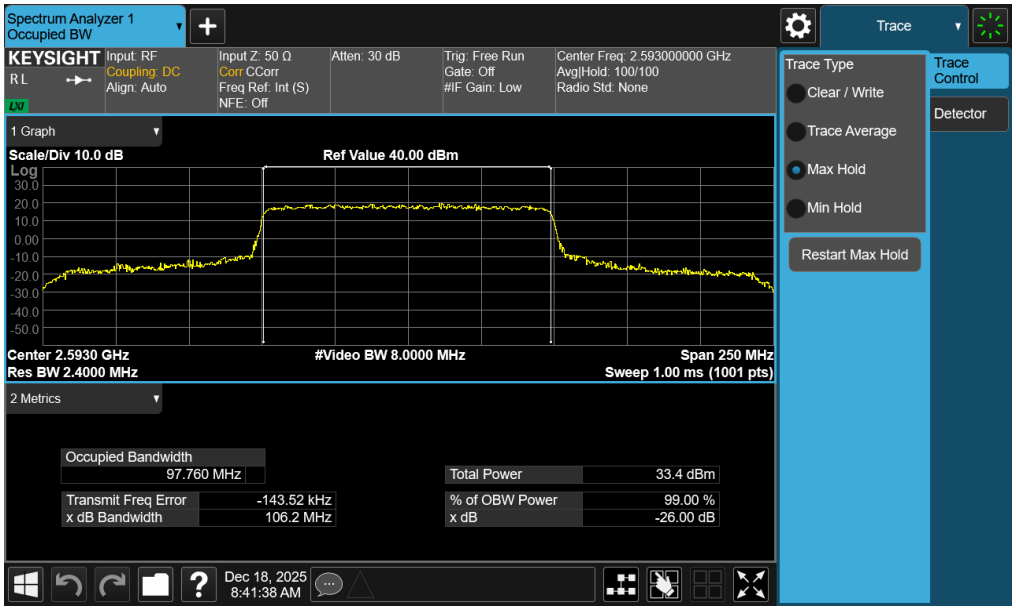
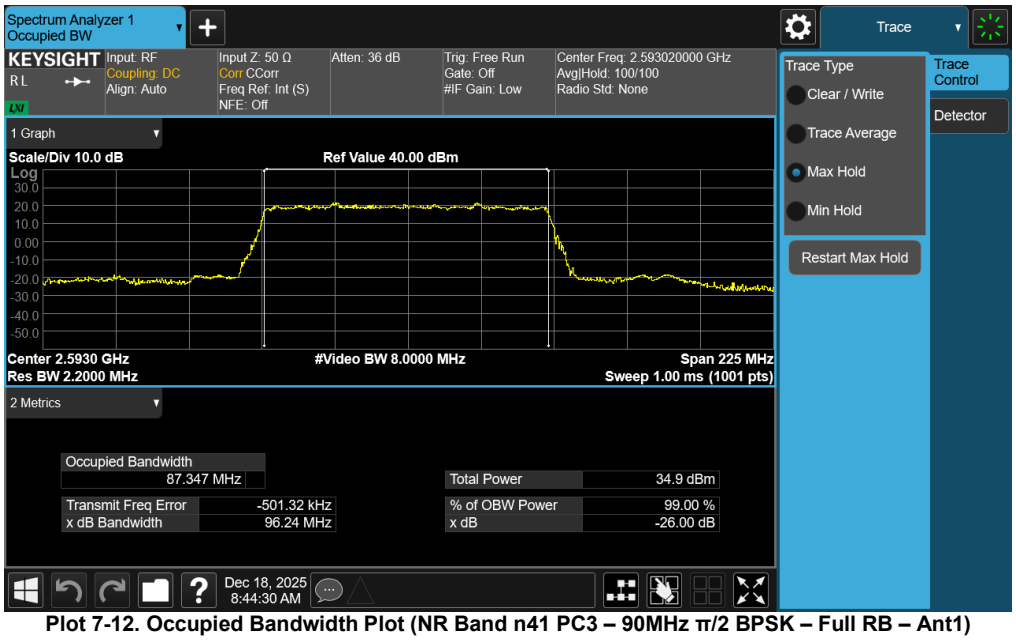



**Plot 7-11. Occupied Bandwidth Plot (NR Band n41 PC3 – 100MHz 16-QAM – Full RB – Ant1)**




**Plot 7-12. Occupied Bandwidth Plot (NR Band n41 PC3 – 90MHz π/2 BPSK – Full RB – Ant1)**

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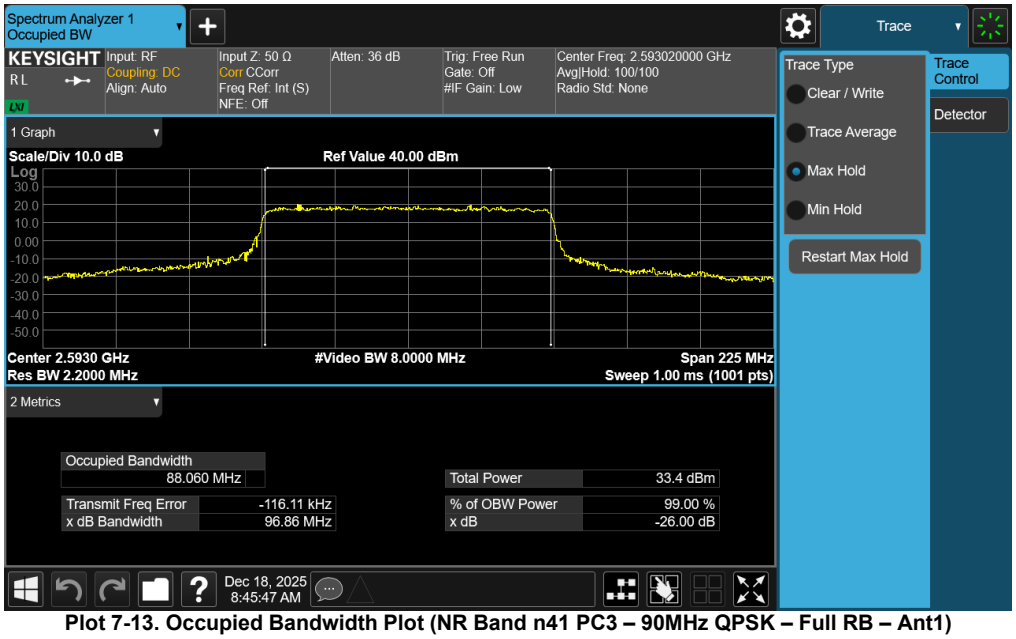


**Plot 7-13. Occupied Bandwidth Plot (NR Band n41 PC3 – 90MHz QPSK – Full RB – Ant1)**

**Plot 7-14. Occupied Bandwidth Plot (NR Band n41 PC3 – 90MHz 16-QAM – Full RB – Ant1)**




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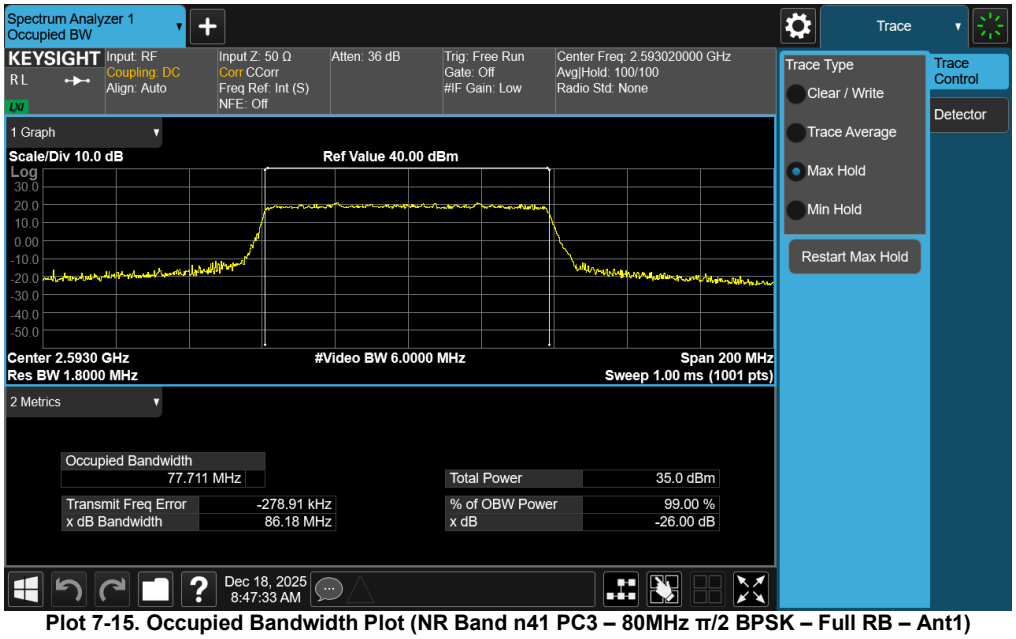


**Plot 7-15. Occupied Bandwidth Plot (NR Band n41 PC3 – 80MHz π/2 BPSK – Full RB – Ant1)**

**Plot 7-16. Occupied Bandwidth Plot (NR Band n41 PC3 – 80MHz QPSK – Full RB – Ant1)**




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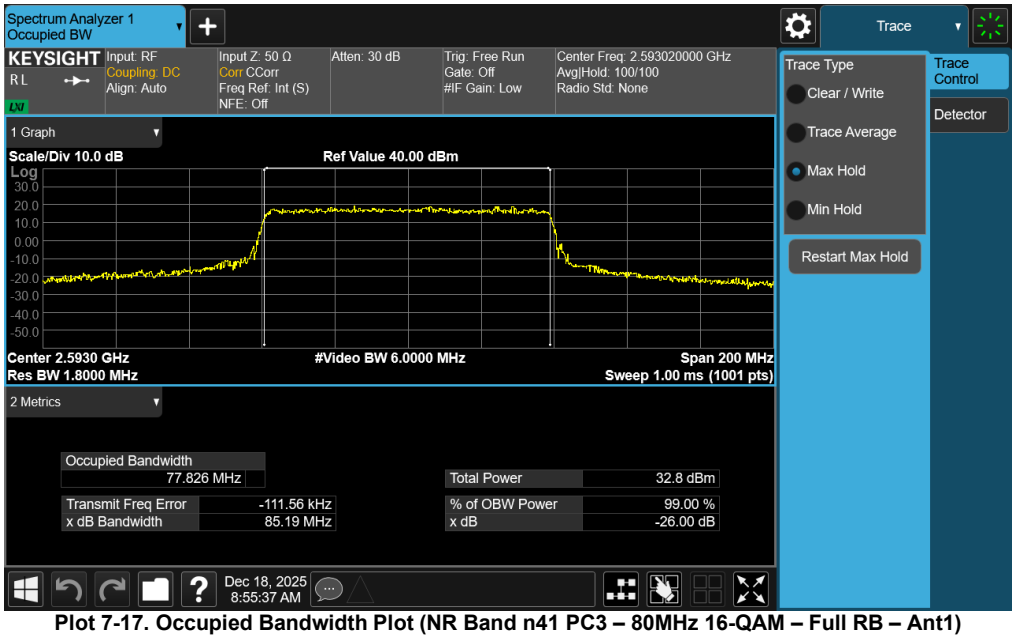
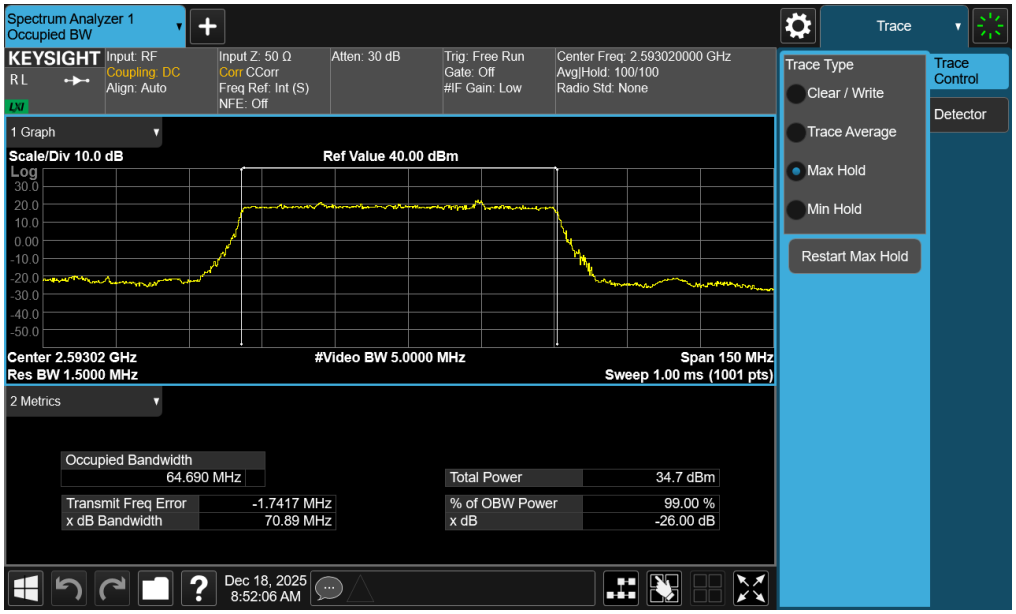



**Plot 7-17. Occupied Bandwidth Plot (NR Band n41 PC3 – 80MHz 16-QAM – Full RB – Ant1)**




**Plot 7-18. Occupied Bandwidth Plot (NR Band n41 PC3 – 70MHz π/2 BPSK – Full RB – Ant1)**

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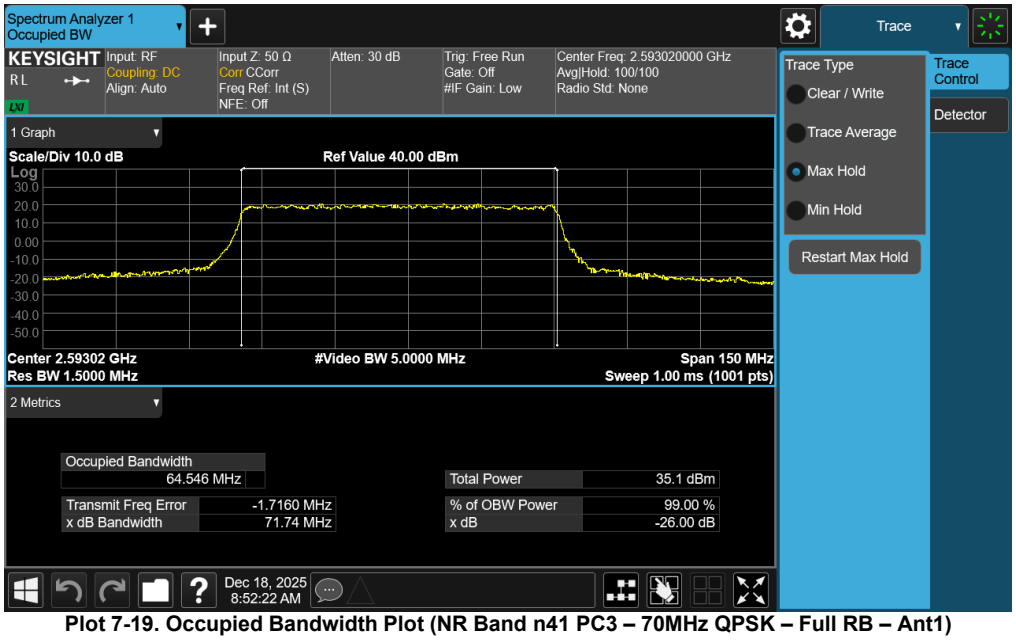
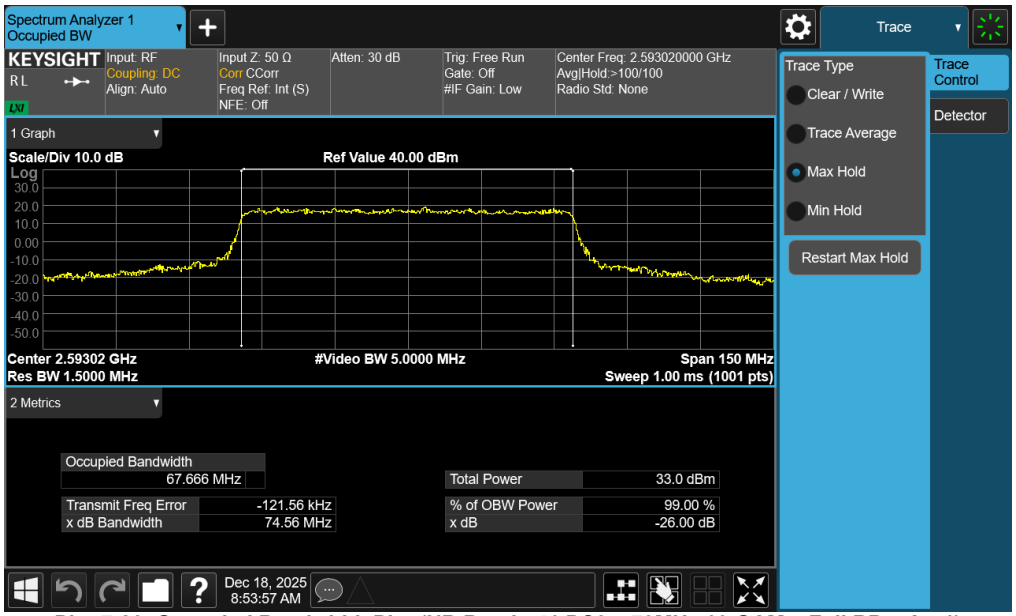



**Plot 7-19. Occupied Bandwidth Plot (NR Band n41 PC3 – 70MHz QPSK – Full RB – Ant1)**




**Plot 7-20. Occupied Bandwidth Plot (NR Band n41 PC3 – 70MHz 16-QAM – Full RB – Ant1)**

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**Plot 7-21. Occupied Bandwidth Plot (NR Band n41 PC3 – 60MHz π/2 BPSK – Full RB – Ant1)**

**Plot 7-22. Occupied Bandwidth Plot (NR Band n41 PC3 – 60MHz QPSK – Full RB – Ant1)**




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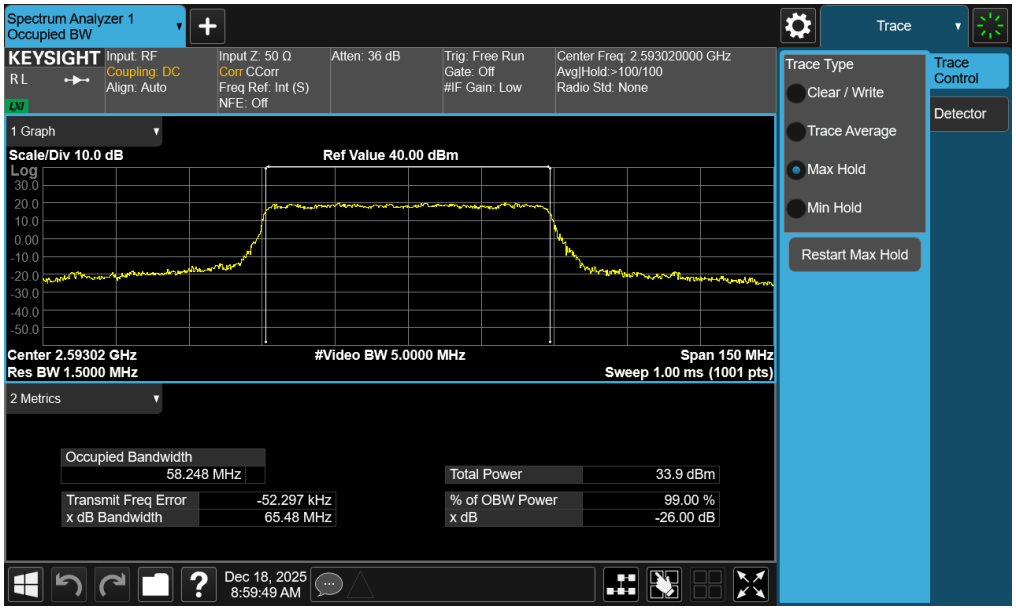


**Plot 7-23. Occupied Bandwidth Plot (NR Band n41 PC3 – 60MHz 16-QAM – Full RB – Ant1)**

**Plot 7-24. Occupied Bandwidth Plot (NR Band n41 PC3 – 50MHz π/2 BPSK – Full RB – Ant1)**




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**Plot 7-25. Occupied Bandwidth Plot (NR Band n41 PC3 – 50MHz QPSK – Full RB – Ant1)**

**Plot 7-26. Occupied Bandwidth Plot (NR Band n41 PC3 – 50MHz 16-QAM – Full RB – Ant1)**




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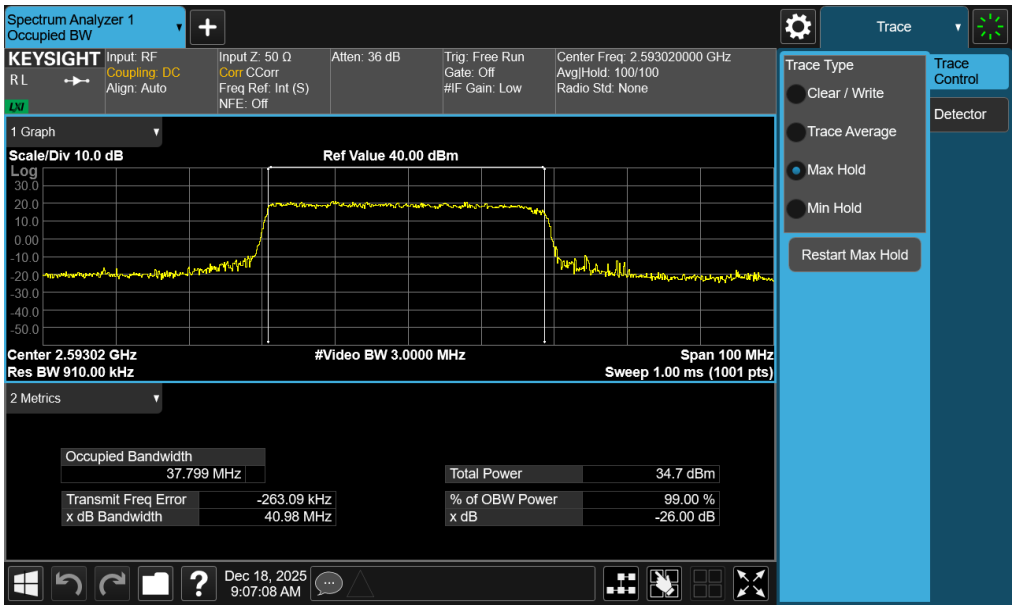


**Plot 7-27. Occupied Bandwidth Plot (NR Band n41 PC3 – 40MHz π/2 BPSK – Full RB – Ant1)**

**Plot 7-28. Occupied Bandwidth Plot (NR Band n41 PC3 – 40MHz QPSK – Full RB – Ant1)**




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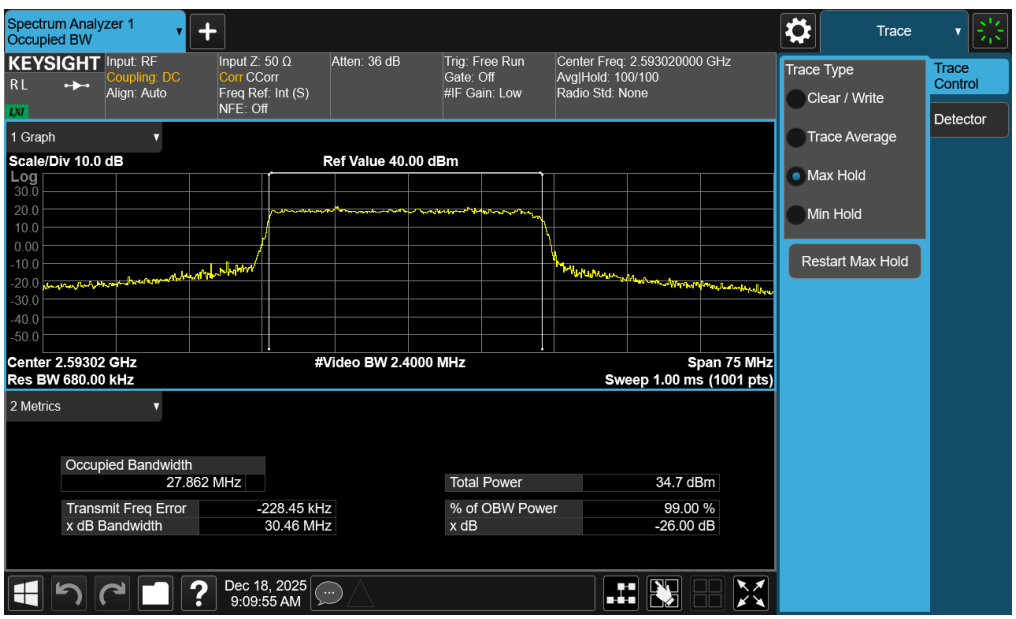
**Plot 7-29. Occupied Bandwidth Plot (NR Band n41 PC3 – 40MHz 16-QAM – Full RB – Ant1)**




**Plot 7-30. Occupied Bandwidth Plot (NR Band n41 PC3 – 30MHz π/2 BPSK – Full RB – Ant1)**

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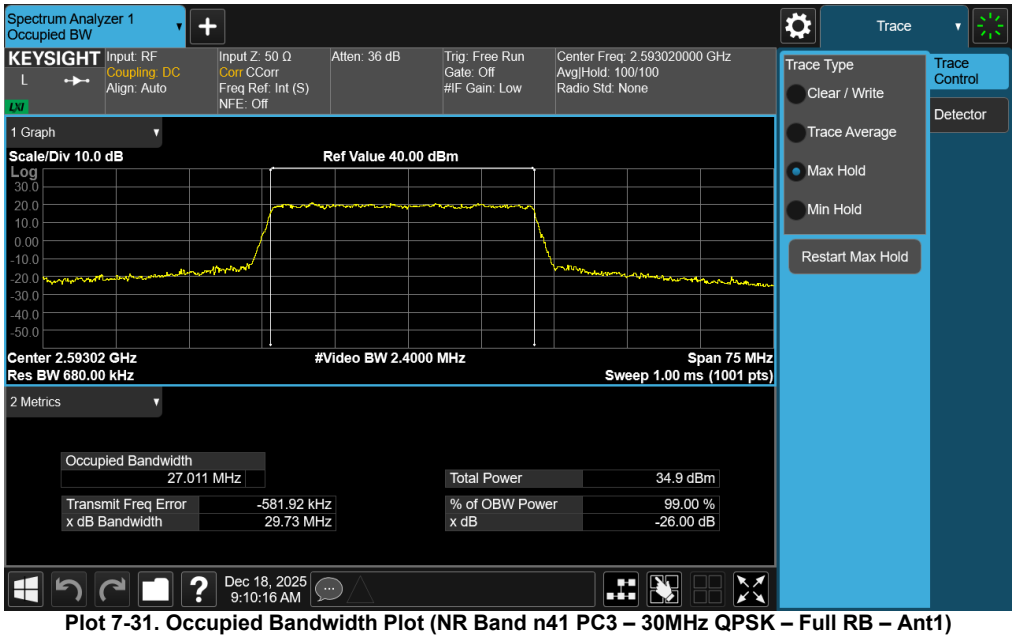


**Plot 7-31. Occupied Bandwidth Plot (NR Band n41 PC3 – 30MHz QPSK – Full RB – Ant1)**

**Plot 7-32. Occupied Bandwidth Plot (NR Band n41 PC3 – 30MHz 16-QAM – Full RB – Ant1)**




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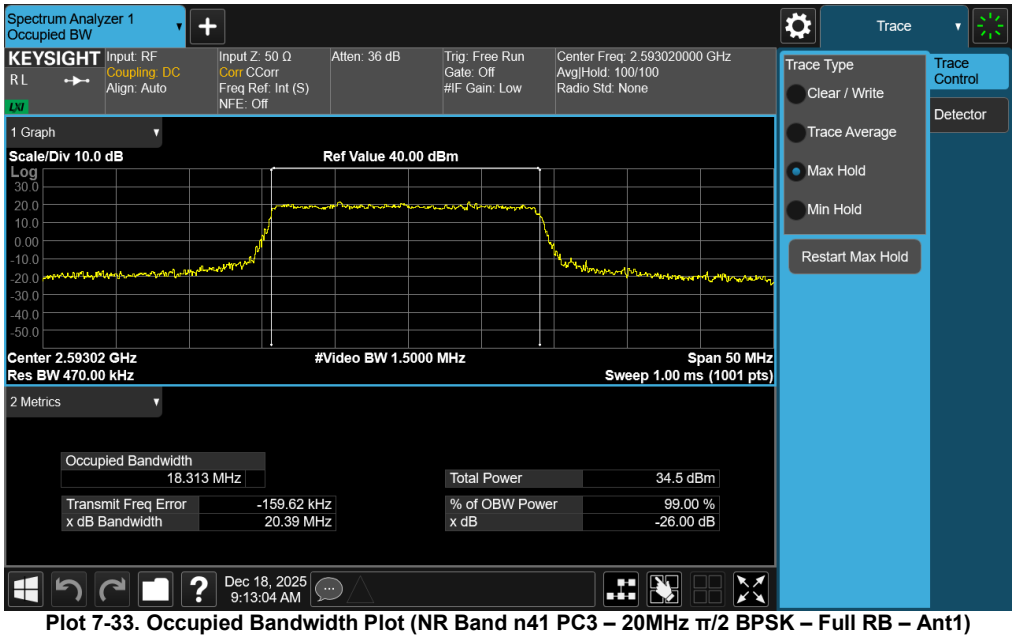
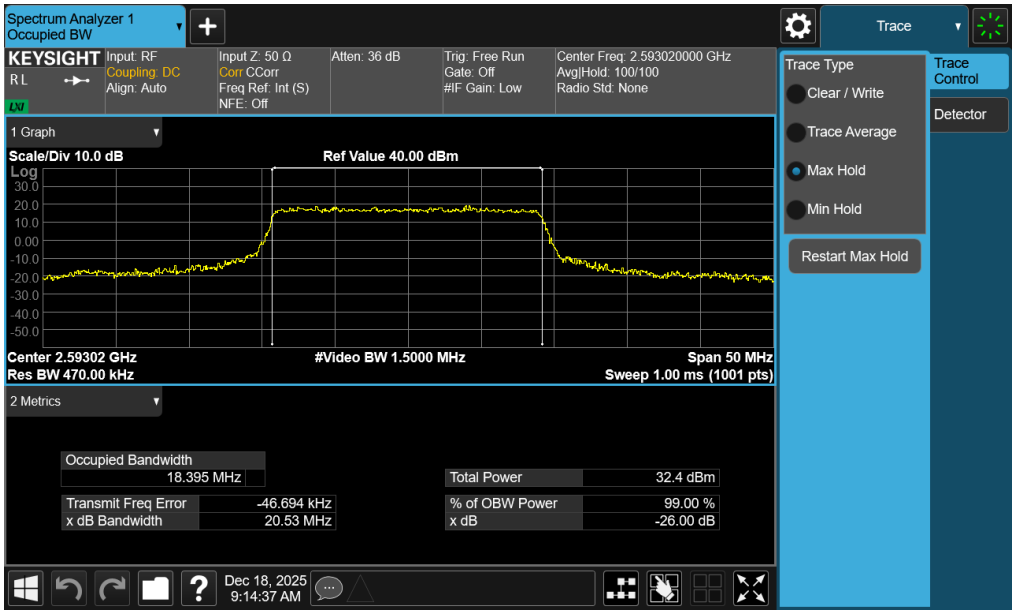



**Plot 7-33. Occupied Bandwidth Plot (NR Band n41 PC3 – 20MHz π/2 BPSK – Full RB – Ant1)**




**Plot 7-34. Occupied Bandwidth Plot (NR Band n41 PC3 – 20MHz QPSK – Full RB – Ant1)**

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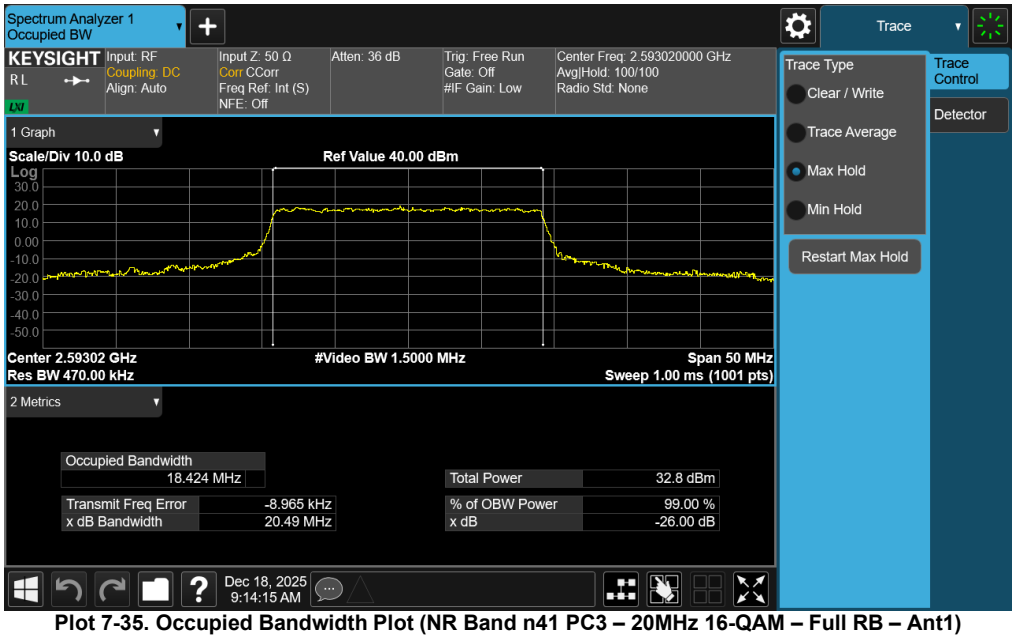


**Plot 7-35. Occupied Bandwidth Plot (NR Band n41 PC3 – 20MHz 16-QAM – Full RB – Ant1)**

**Plot 7-36. Occupied Bandwidth Plot (NR Band n41 PC3 – 15MHz π/2 BPSK – Full RB – Ant1)**




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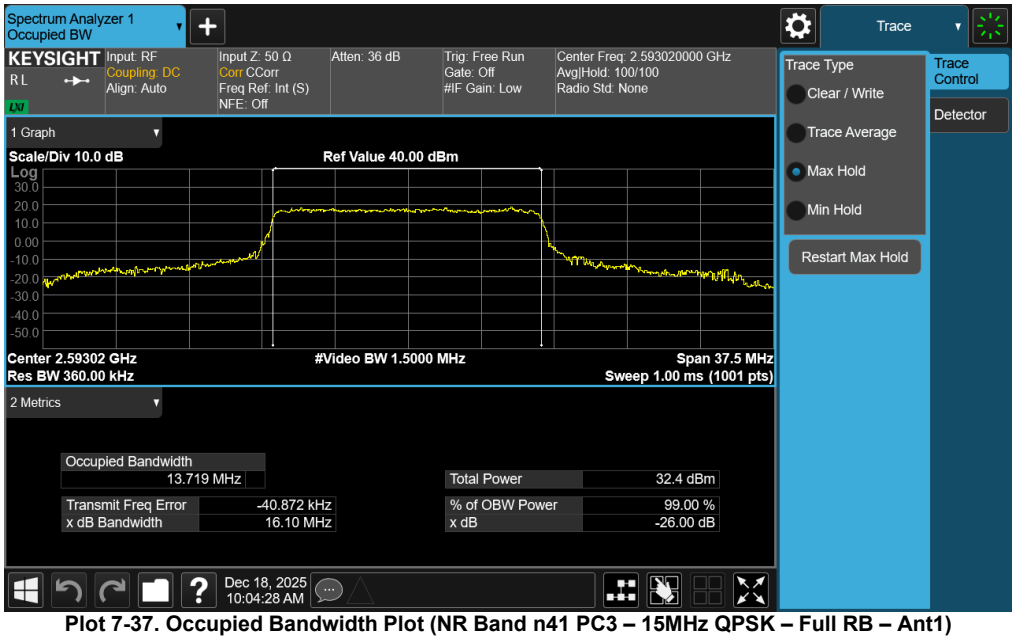
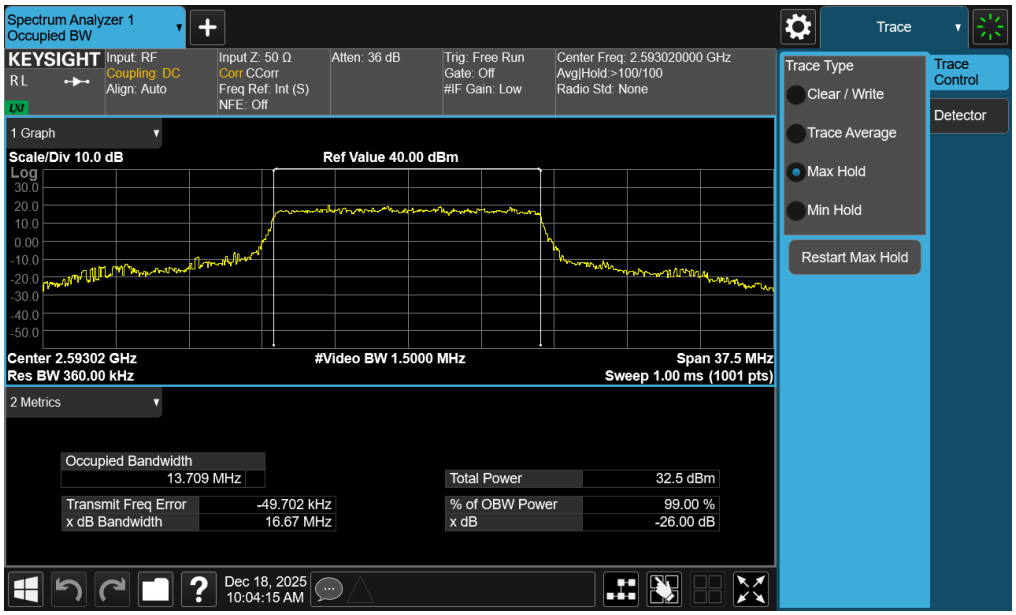



**Plot 7-37. Occupied Bandwidth Plot (NR Band n41 PC3 – 15MHz QPSK – Full RB – Ant1)**




**Plot 7-38. Occupied Bandwidth Plot (NR Band n41 PC3 – 15MHz 16-QAM – Full RB – Ant1)**

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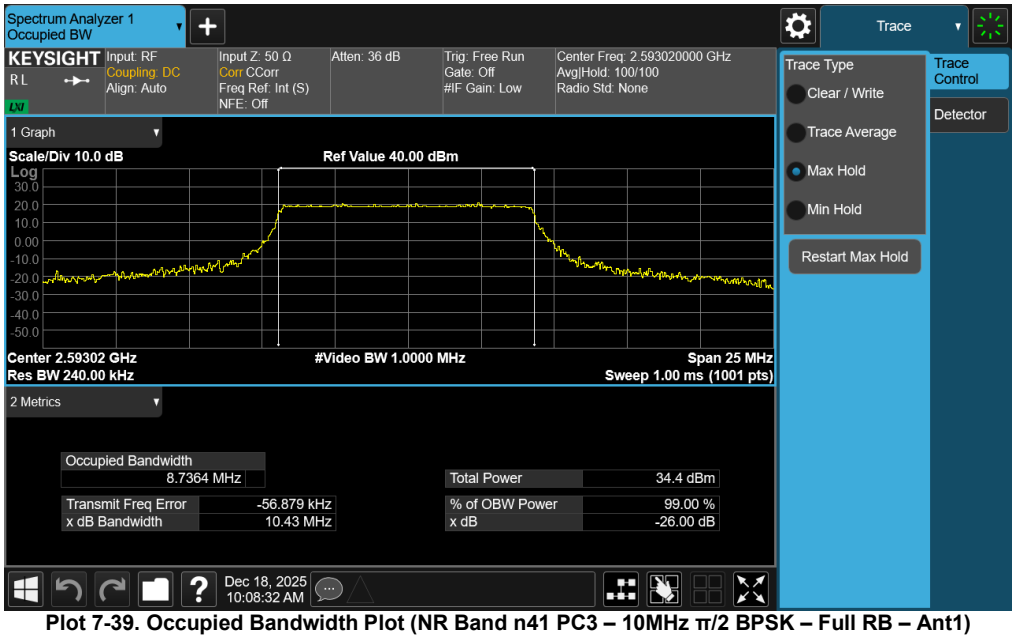


**Plot 7-39. Occupied Bandwidth Plot (NR Band n41 PC3 – 10MHz π/2 BPSK – Full RB – Ant1)**

**Plot 7-40. Occupied Bandwidth Plot (NR Band n41 PC3 – 10MHz QPSK – Full RB – Ant1)**




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**Plot 7-41. Occupied Bandwidth Plot (NR Band n41 PC3 – 10MHz 16-QAM – Full RB – Ant1)**




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| Mode | Bandwidth | Modulation | OBW [MHz] |
|---|---|---|---|
| LTE-B41 PC3 | 20MHz | QPSK | 17.99 |
| | | 16QAM | 18.03 |
| | 15MHz | QPSK | 13.54 |
| | | 16QAM | 13.54 |
| | 10MHz | QPSK | 9.06 |
| | | 16QAM | 9.05 |
| | 5MHz | QPSK | 4.54 |
| | | 16QAM | 4.53 |

**Table 7-10. Occupied Bandwidth Test Results – LTE – Ant 2**



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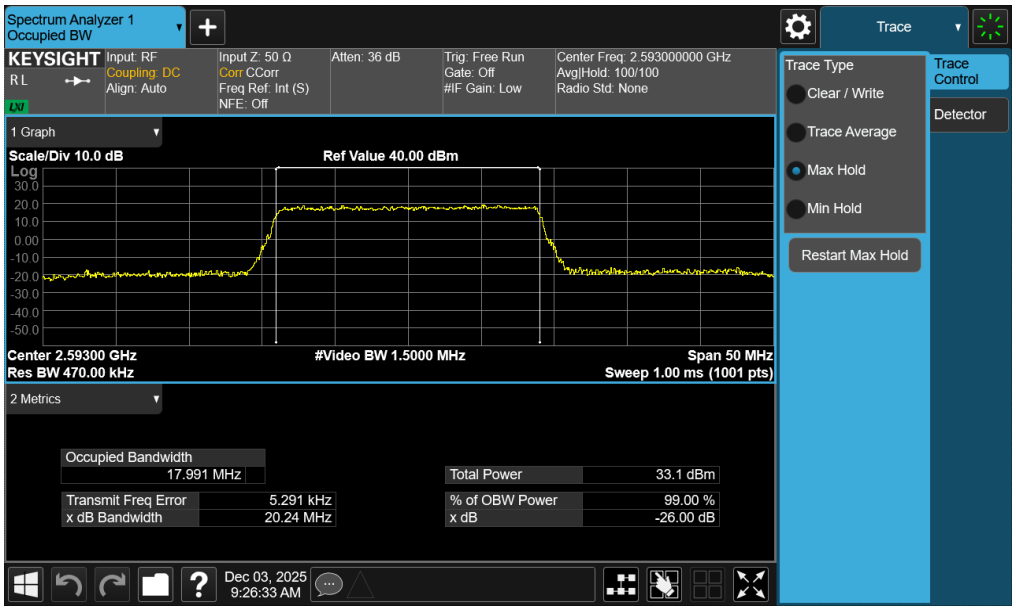
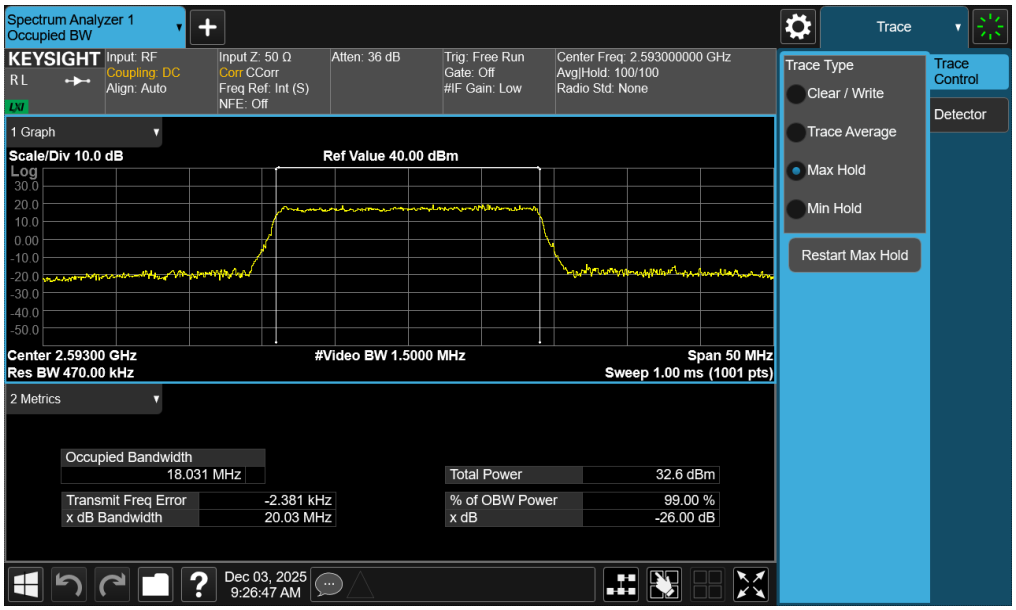
## LTE Band 41(PC3) – Ant2




**Plot 7-42. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz QPSK - Full RB - Ant2)**




**Plot 7-43. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz 16-QAM - Full RB - Ant2)**

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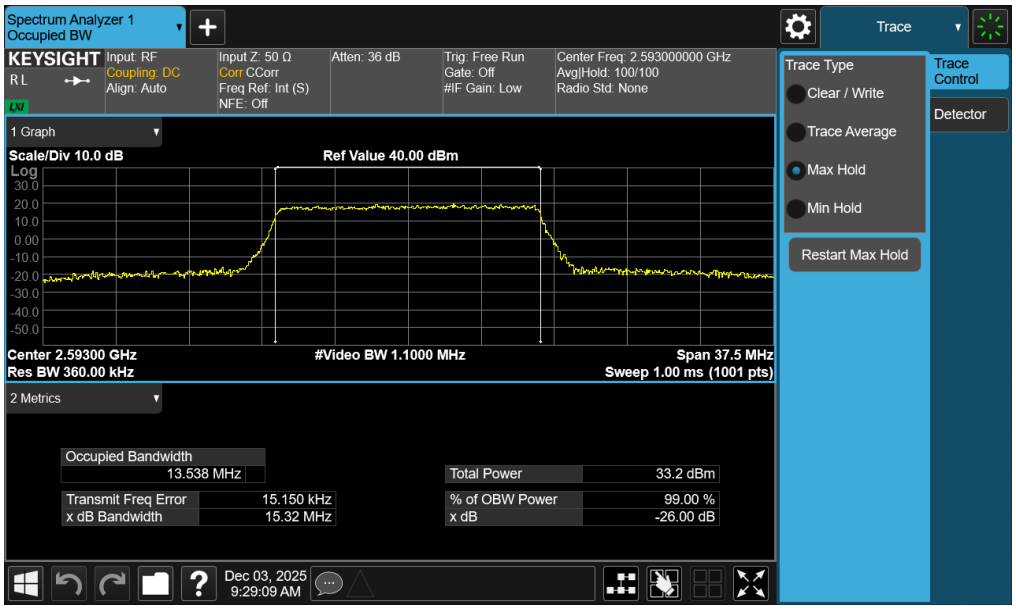
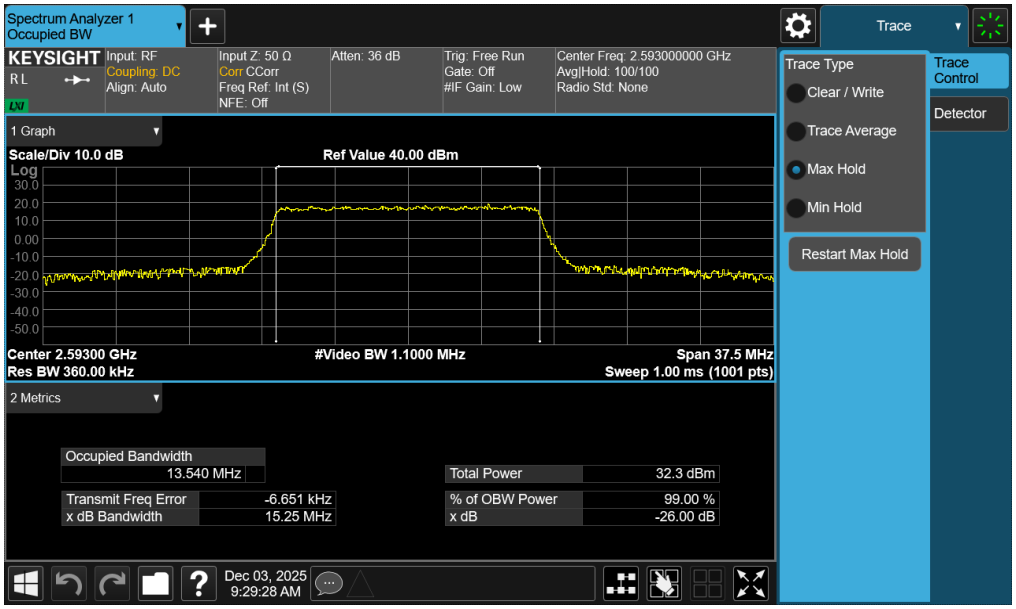



**Plot 7-44. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz QPSK - Full RB - Ant2)**




**Plot 7-45. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz 16-QAM - Full RB - Ant2)**

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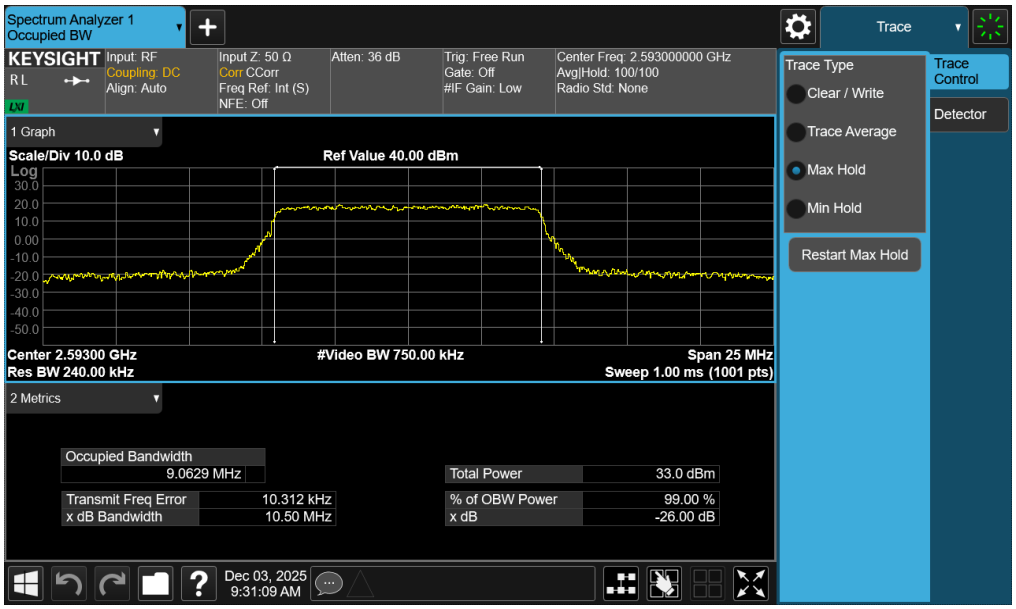
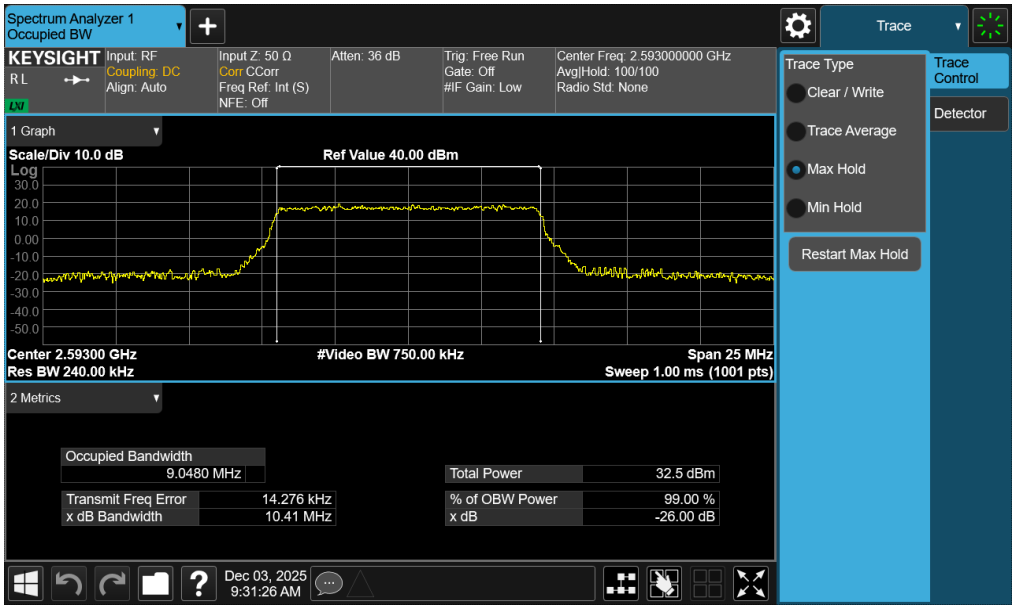



**Plot 7-46. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz QPSK - Full RB - Ant2)**




**Plot 7-47. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz 16-QAM - Full RB - Ant2)**

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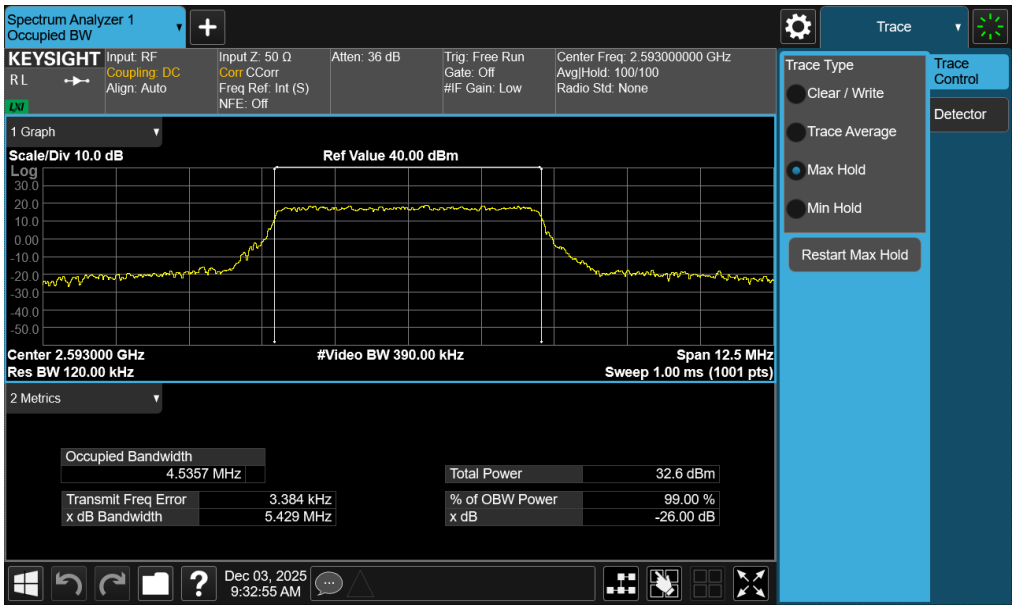
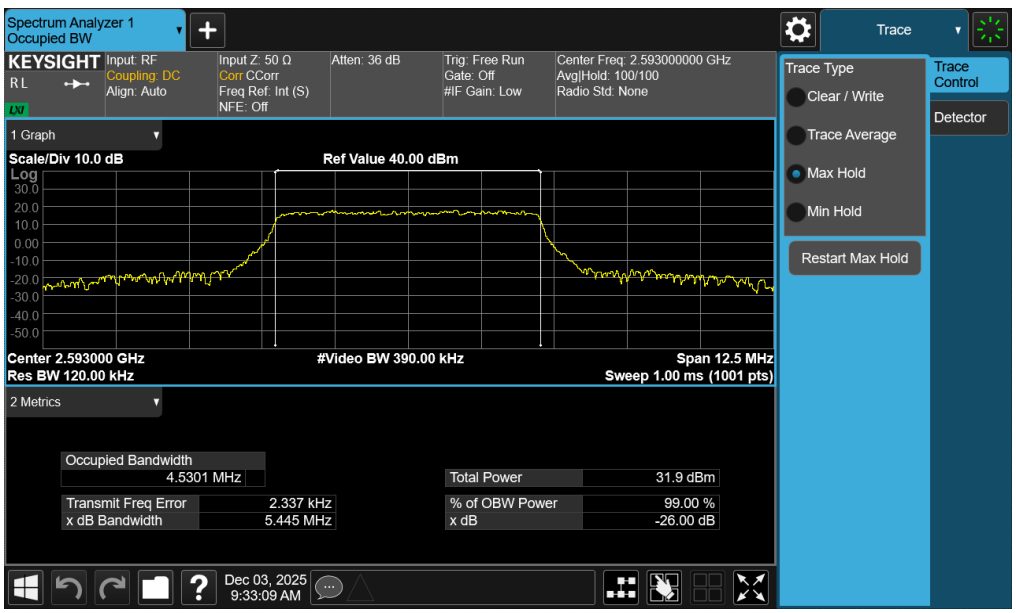



**Plot 7-48. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz QPSK - Full RB - Ant2)**




**Plot 7-49. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz 16-QAM - Full RB - Ant2)**

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## 7.4 Spurious and Harmonic Emissions at Antenna Terminal

**Test Overview**

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

***The minimum permissible attenuation level of any spurious emission is 43 + 10 $\log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.***

***For Band 41, the minimum permissible attenuation level of any spurious emission is 55 + 10$\log_{10}(P_{[Watts]})$.***

**Test Procedure Used**

ANSI C63.26:2015 – Section 5.7.4

**Test Settings**

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

**Test Setup**

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

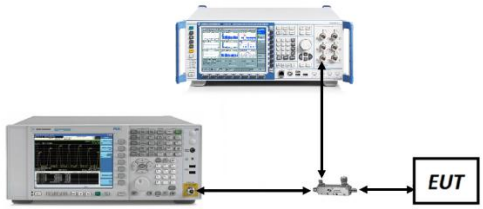


**Figure 7-3. Test Instrument & Measurement Setup**

**Test Notes**

1. Per Part 27, RSS-195 and RSS-199, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.



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| Mode | Bandwidth | Channel | Range [MHz] | Level [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| LTE-B41PC3 | 20MHz | Low | 30.0 - 2288.0 | -42.99 | -25 | -17.99 |
| | | Low | 2365.0 - 15000.0 | -37.73 | -25 | -12.73 |
| | | Low | 15000.0 - 27000.0 | -45.5 | -25 | -20.50 |
| | | Mid | 30.0 - 2288.0 | -42.33 | -25 | -17.33 |
| | | Mid | 2570.0 - 15000.0 | -36.85 | -25 | -11.85 |
| | | Mid | 15000.0 - 27000.0 | -47.15 | -25 | -22.14 |
| | | High | 30.0 - 2288.0 | -42.28 | -25 | -17.28 |
| | | High | 2570.0 - 15000.0 | -36.69 | -25 | -11.69 |
| | | High | 15000.0 - 27000.0 | -46.29 | -25 | -21.29 |

**Table 7-11. Conducted Emission Test Results – LTE – Ant 1**



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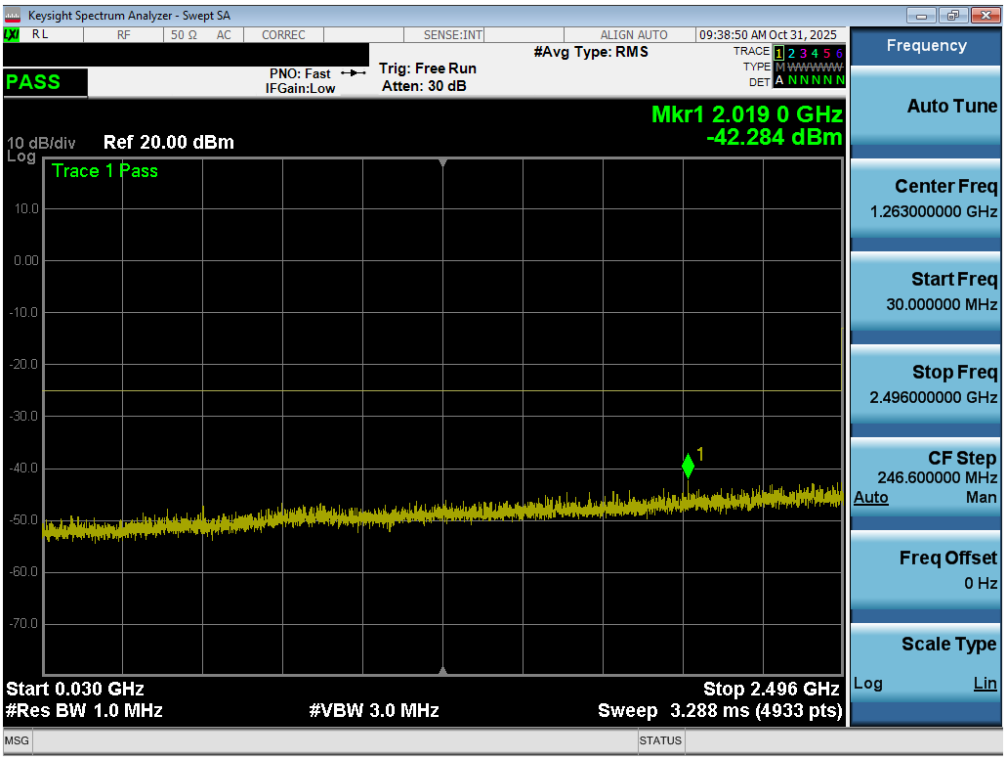
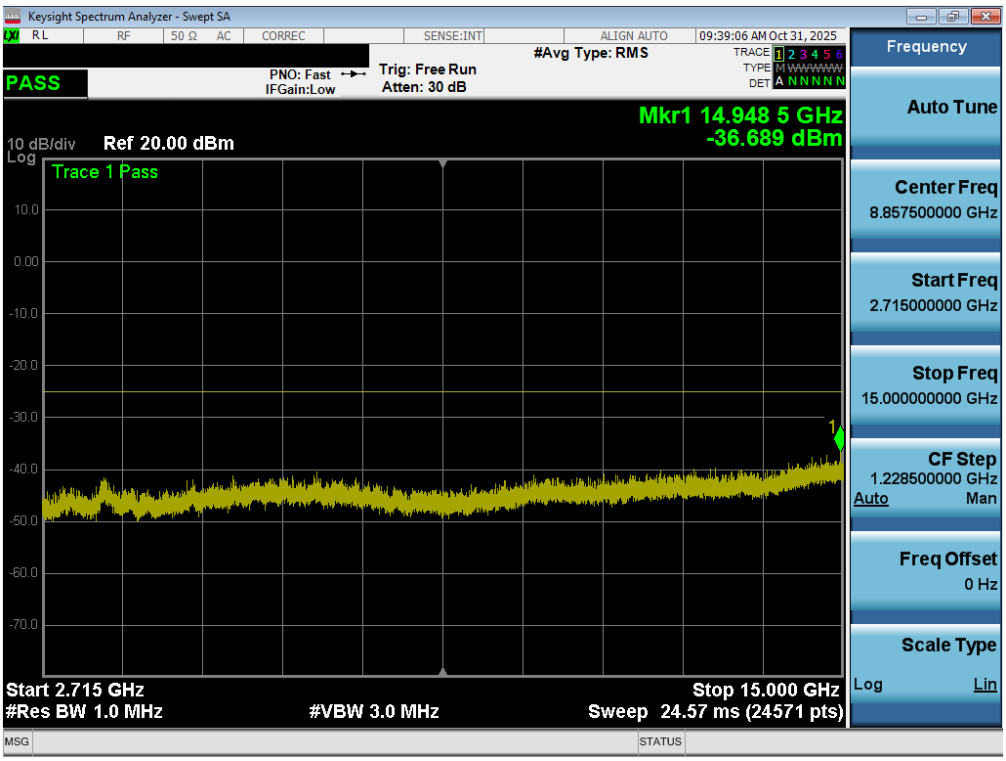
## LTE Band 41(PC3)– Ant1




**Plot 7-50. Conducted Spurious Plot (LTE Band 41(PC3)- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Ant1)**




**Plot 7-51. Conducted Spurious Plot (LTE Band 41(PC3)- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Ant1)**

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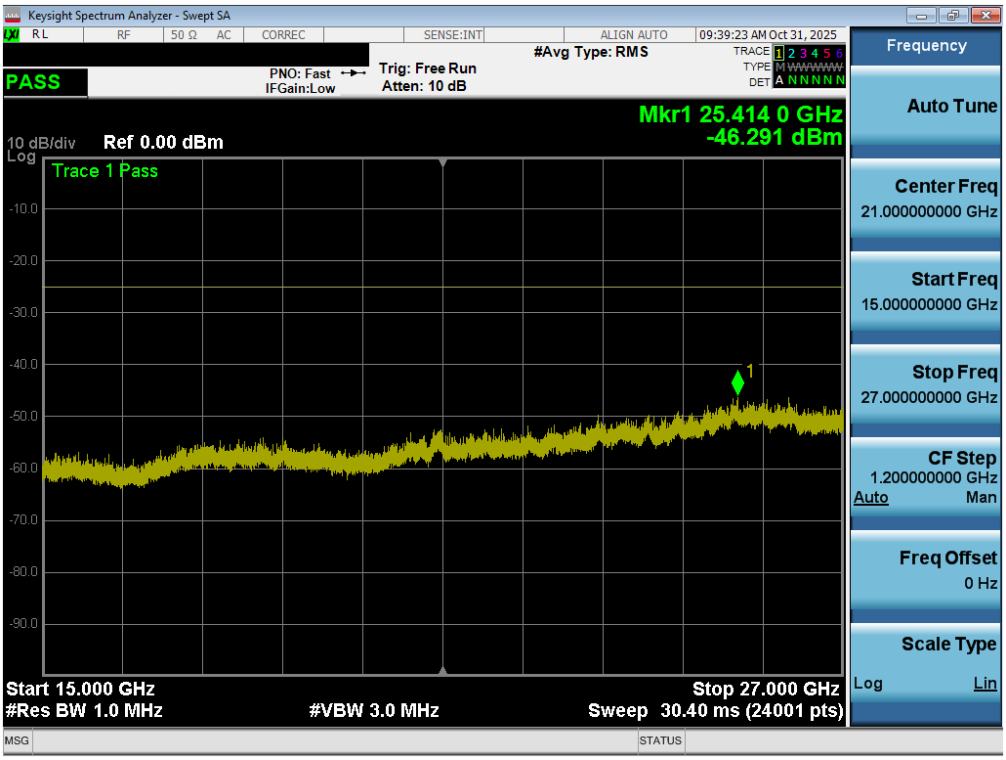


**Plot 7-52. Conducted Spurious Plot (LTE Band 41(PC3)- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Ant1)**




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| Mode | Bandwidth | Channel | Range [MHz] | Level [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| NR-n41PC3 | 100MHz | Low | 30.0 - 2470.0 | -43.02 | -25 | -18.02 |
| | | Low | 2690.0 - 15000.0 | -37.2 | -25 | -12.20 |
| | | Low | 15000.0 - 27000.0 | -52.1 | -25 | -27.10 |
| | | Mid | 30.0 - 2470.0 | -39.04 | -25 | -14.04 |
| | | Mid | 2690.0 - 15000.0 | -38.16 | -25 | -13.16 |
| | | Mid | 15000.0 - 27000.0 | -52.15 | -25 | -27.15 |
| | | High | 30.0 - 2470.0 | -42.19 | -25 | -17.19 |
| | | High | 2690.0 - 15000.0 | -37.86 | -25 | -12.86 |
| | | High | 15000.0 - 27000.0 | -51.52 | -25 | -26.52 |

**Table 7-12. Conducted Emission Test Results – NR – Ant 1**




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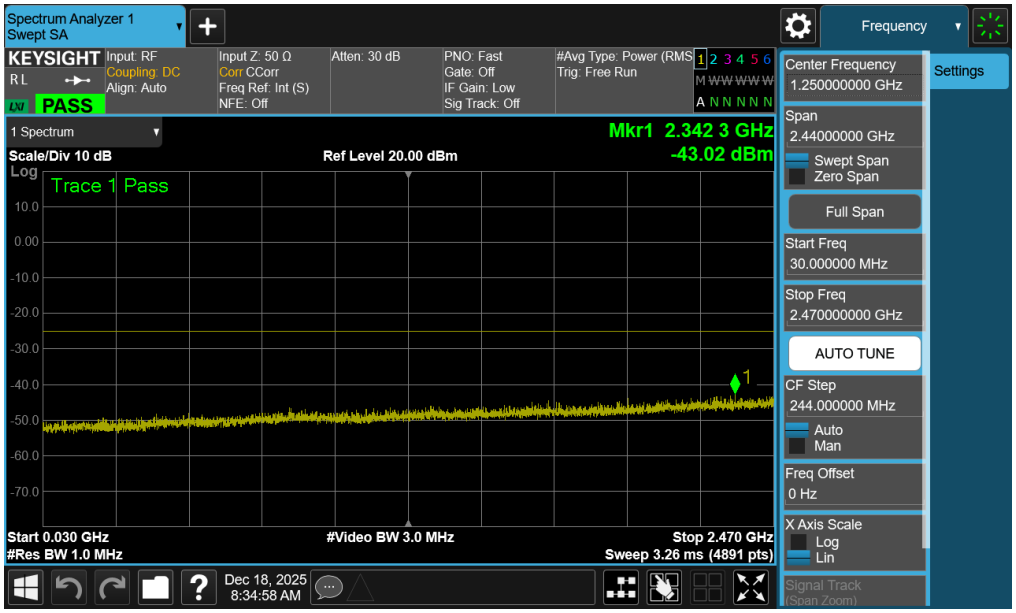
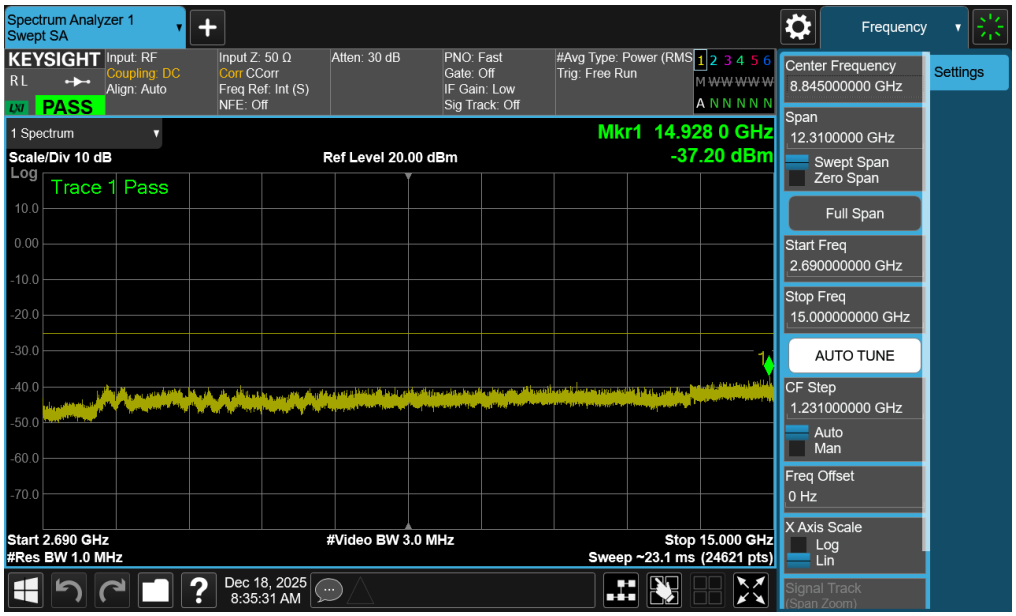
## NR Band n41 – Main – Ant1




**Plot 7-53. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel Ant1)**




**Plot 7-54. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel Ant1)**

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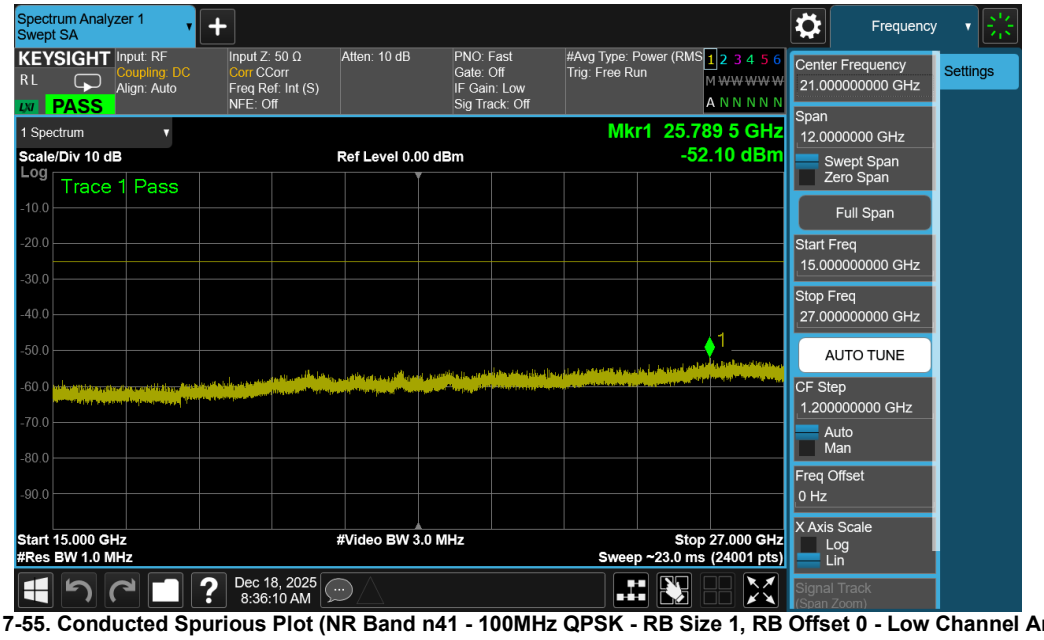


**Plot 7-55. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel Ant1)**




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| Mode | Bandwidth | Channel | Range [MHz] | Level [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| LTE-B41PC3 | 20MHz | Low | 30.0 - 2475.0 | -41.34 | -25 | -16.34 |
| | | Low | 2690.0 - 15000.0 | -36.59 | -25 | -11.59 |
| | | Low | 15000.0 - 27000.0 | -52.36 | -25 | -27.36 |
| | | Mid | 30.0 - 2500.0 | -41.06 | -25 | -16.06 |
| | | Mid | 2690.0 - 15000.0 | -36.05 | -25 | -11.05 |
| | | Mid | 15000.0 - 27000.0 | -51.46 | -25 | -26.46 |
| | | High | 30.0 - 2500.0 | -40.73 | -25 | -15.73 |
| | | High | 2690.0 - 15000.0 | -35.99 | -25 | -10.99 |
| | | High | 15000.0 - 27000.0 | -52.49 | -25 | -27.49 |

**Table 7-13. Conducted Emission Test Results – LTE – Ant 2**



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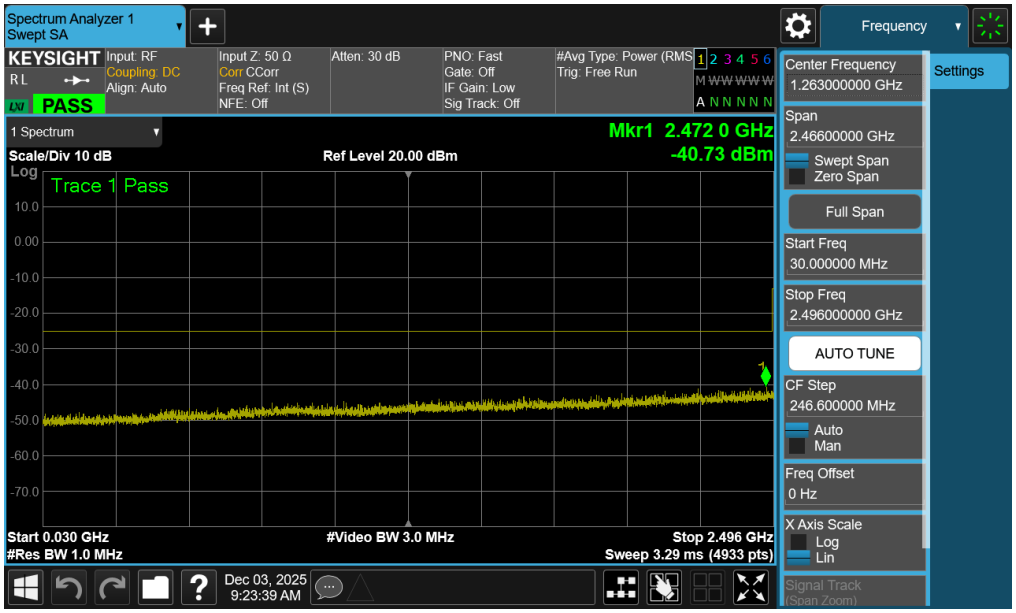
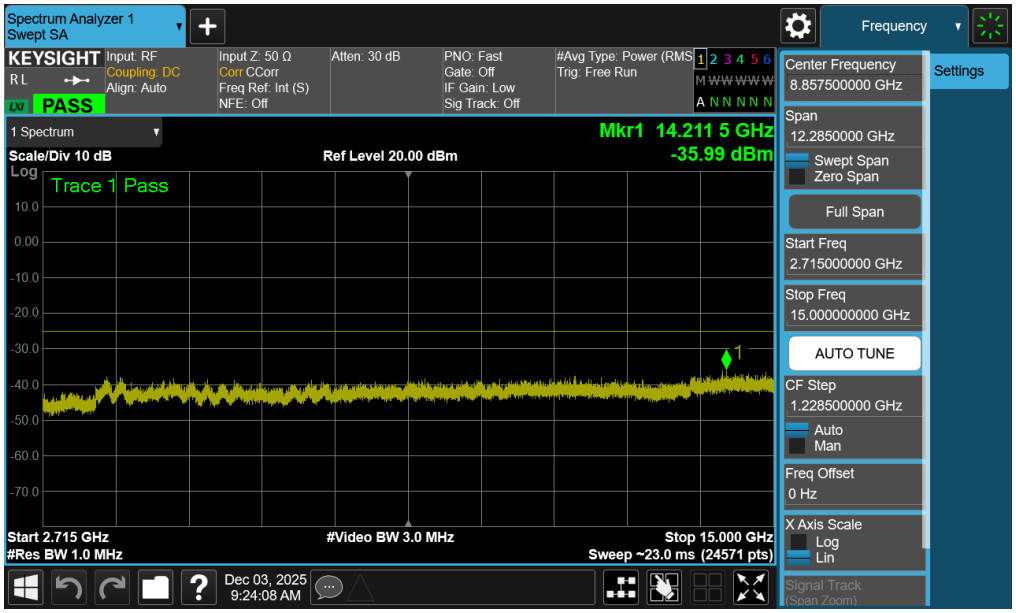
## LTE Band 41(PC3)– Ant2




**Plot 7-56. Conducted Spurious Plot (LTE Band 41(PC3)- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Ant2)**




**Plot 7-57. Conducted Spurious Plot (LTE Band 41(PC3)- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Ant2)**

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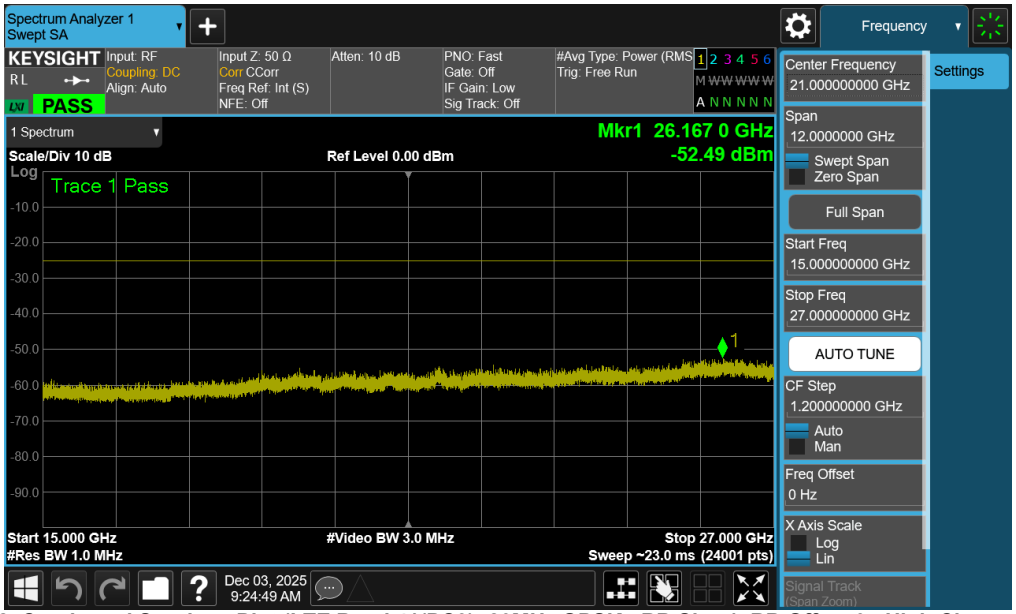


**Plot 7-58. Conducted Spurious Plot (LTE Band 41(PC3)- 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Ant2)**




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## 7.5 Band Edge Emissions at Antenna Terminal

**Test Overview**

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

***The minimum permissible attenuation level for Band 41 is as noted in the Test Notes on the following page.***

**Test Procedure Used**

ANSI C63.26:2015 – Section 5.7.3

**Test Settings**

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

**Test Setup**

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

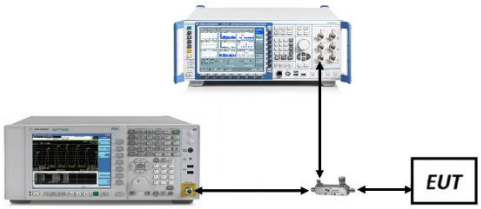


**Figure 7-4. Test Instrument & Measurement Setup**




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## Test Notes

1. Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

2. Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

3. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.



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| Mode | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| LTE-B41PC3 | 20MHz | Low | Band Edge | -37.89 | -25 | -12.89 |
| | | High | Band Edge | -34.61 | -13 | -21.61 |
| | 15MHz | Low | Band Edge | -37.93 | -25 | -12.93 |
| | | High | Band Edge | -33.84 | -13 | -20.84 |
| | 10MHz | Low | Band Edge | -36.61 | -25 | -11.61 |
| | | High | Band Edge | -43.85 | -25 | -18.85 |
| | 5MHz | Low | Band Edge | -41.50 | -25 | -16.50 |
| | | High | Band Edge | -27.58 | -10 | -17.58 |

**Table 7-14. Conducted Band Edge Test Results – LTE – Ant 1**




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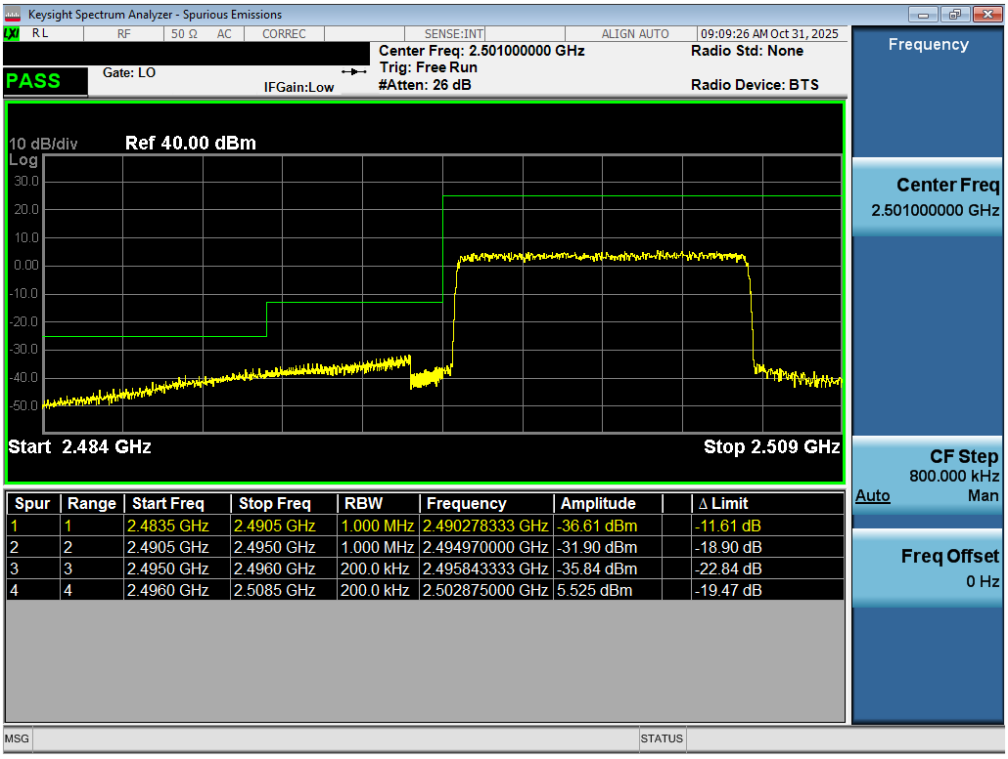
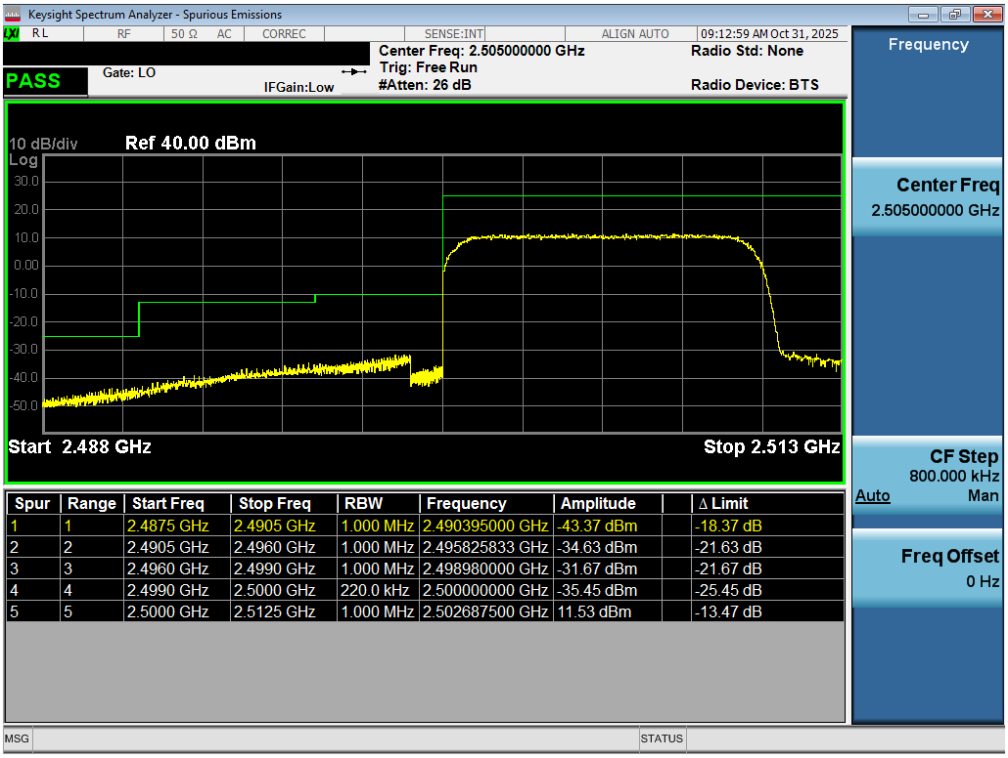
## LTE Band 41(PC3) – Ant1




| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | Δ Limit |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2.4835 GHz | 2.4905 GHz | 1.000 MHz | 2.490278333 GHz | -36.61 dBm | -11.61 dB |
| 2 | 2 | 2.4905 GHz | 2.4950 GHz | 1.000 MHz | 2.494970000 GHz | -31.90 dBm | -18.90 dB |
| 3 | 3 | 2.4950 GHz | 2.4960 GHz | 200.0 kHz | 2.495843333 GHz | -35.84 dBm | -22.84 dB |
| 4 | 4 | 2.4960 GHz | 2.5085 GHz | 200.0 kHz | 2.502875000 GHz | 5.525 dBm | -19.47 dB |

**Plot 7-59. Lower ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB - Ant1)**




| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | Δ Limit |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2.4875 GHz | 2.4905 GHz | 1.000 MHz | 2.490395000 GHz | -43.37 dBm | -18.37 dB |
| 2 | 2 | 2.4905 GHz | 2.4960 GHz | 1.000 MHz | 2.495825833 GHz | -34.63 dBm | -21.63 dB |
| 3 | 3 | 2.4960 GHz | 2.4990 GHz | 1.000 MHz | 2.498980000 GHz | -31.67 dBm | -21.67 dB |
| 4 | 4 | 2.4990 GHz | 2.5000 GHz | 220.0 kHz | 2.500000000 GHz | -35.45 dBm | -25.45 dB |
| 5 | 5 | 2.5000 GHz | 2.5125 GHz | 1.000 MHz | 2.502687500 GHz | 11.53 dBm | -13.47 dB |

**Plot 7-60. Lower ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB - Ant1) - ISED**

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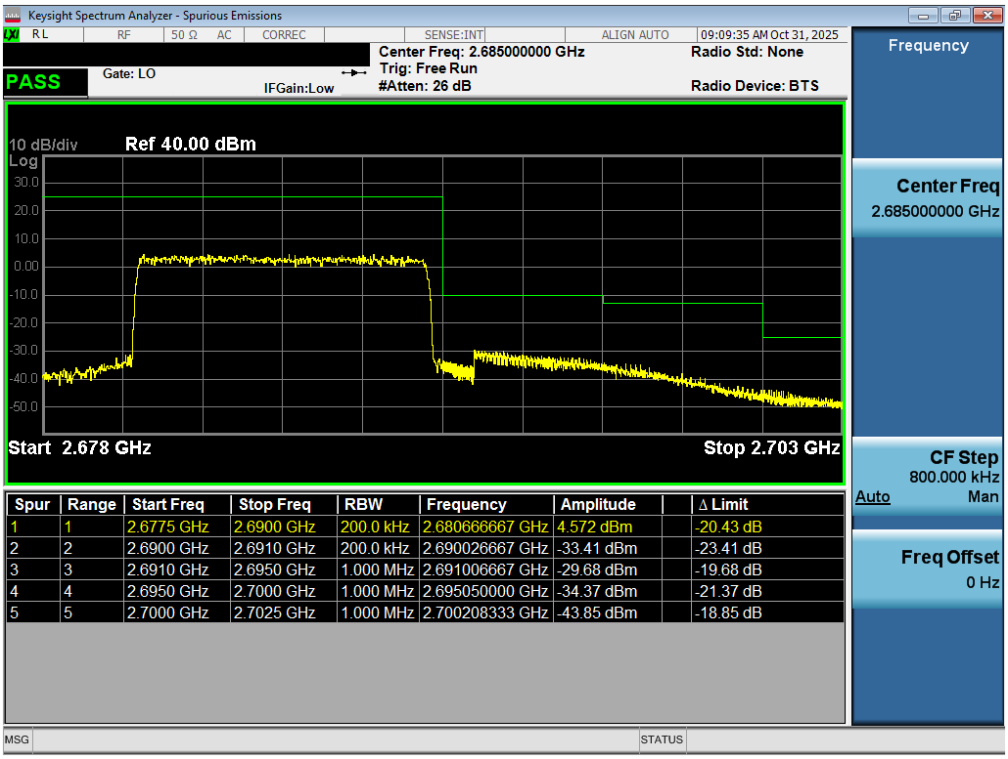


| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | | Δ Limit |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 2.6775 GHz | 2.6900 GHz | 200.0 kHz | 2.680666667 GHz | 4.572 dBm | | -20.43 dB |
| 2 | 2 | 2.6900 GHz | 2.6910 GHz | 200.0 kHz | 2.690026667 GHz | -33.41 dBm | | -23.41 dB |
| 3 | 3 | 2.6910 GHz | 2.6950 GHz | 1.000 MHz | 2.691006667 GHz | -29.68 dBm | | -19.68 dB |
| 4 | 4 | 2.6950 GHz | 2.7000 GHz | 1.000 MHz | 2.695050000 GHz | -34.37 dBm | | -21.37 dB |
| 5 | 5 | 2.7000 GHz | 2.7025 GHz | 1.000 MHz | 2.700208333 GHz | -43.85 dBm | | -18.85 dB |

**Plot 7-61. Upper ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB - Ant1)**




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| Mode | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| NR-n41PC3 | 100MHz | Low | Band Edge | -29.19 | -25 | -4.19 |
| | | High | Band Edge | -27.32 | -13 | -14.32 |
| | 90MHz | Low | Band Edge | -30.41 | -25 | -5.41 |
| | | High | Band Edge | -28.20 | -13 | -15.20 |
| | 80MHz | Low | Band Edge | -30.31 | -25 | -5.31 |
| | | High | Band Edge | -27.46 | -13 | -14.46 |
| | 70MHz | Low | Band Edge | -30.48 | -25 | -5.48 |
| | | High | Band Edge | -27.45 | -13 | -14.45 |
| | 60MHz | Low | Band Edge | -31.29 | -25 | -6.29 |
| | | High | Band Edge | -22.44 | -10 | -12.44 |
| | 50MHz | Low | Band Edge | -30.11 | -25 | -5.11 |
| | | High | Band Edge | -24.88 | -13 | -11.88 |
| | 40MHz | Low | Band Edge | -31.51 | -25 | -6.51 |
| | | High | Band Edge | -27.84 | -13 | -14.84 |
| | 30MHz | Low | Band Edge | -32.50 | -25 | -7.50 |
| | | High | Band Edge | -27.14 | -13 | -14.14 |
| | 20MHz | Low | Band Edge | -32.27 | -25 | -7.27 |
| | | High | Band Edge | -26.54 | -13 | -13.54 |
| | 15MHz | Low | Band Edge | -33.49 | -25 | -8.49 |
| | | High | Band Edge | -23.30 | -10 | -13.30 |
| | 10MHz | Low | Band Edge | -33.04 | -25 | -8.04 |
| | | High | Band Edge | -21.80 | -10 | -11.80 |

**Table 7-15. Conducted Band Edge Test Results – n41 Ant 1**




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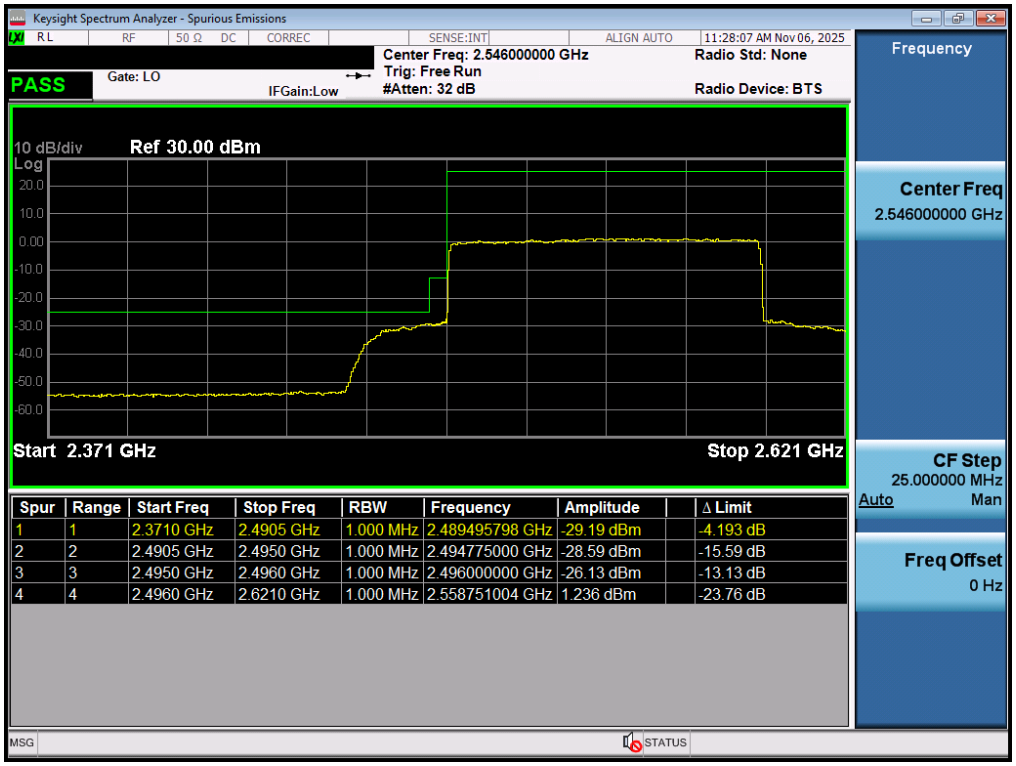
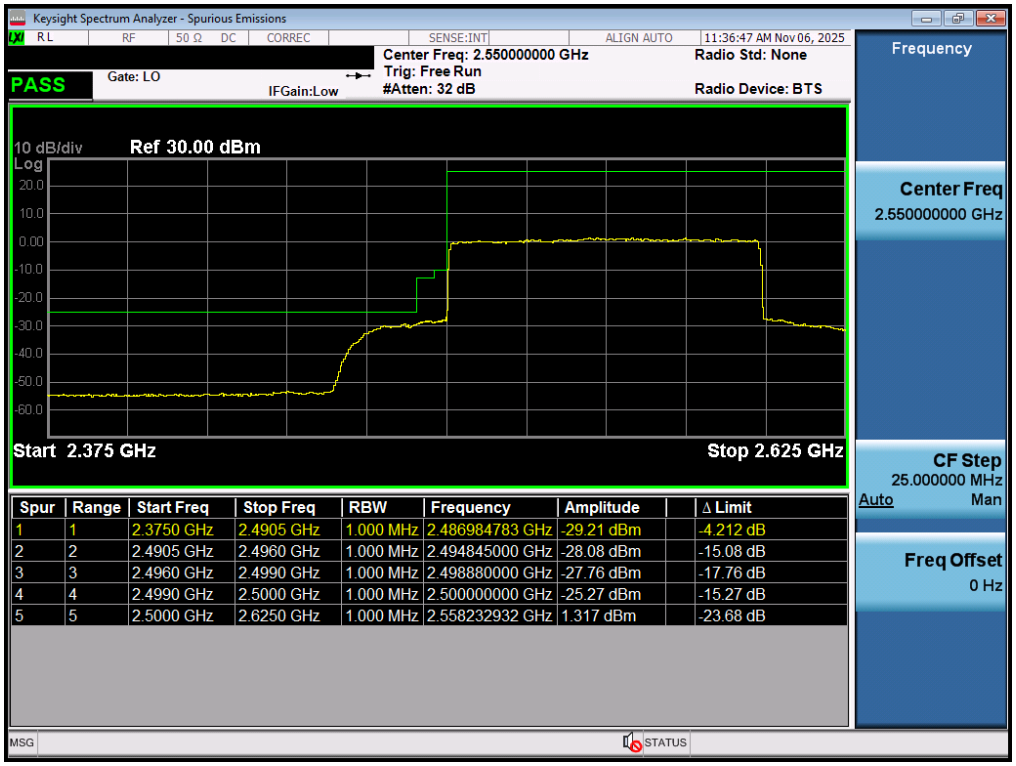
## NR Band n41 – Main – Ant1




| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | Δ Limit |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2.3710 GHz | 2.4905 GHz | 1.000 MHz | 2.489495798 GHz | -29.19 dBm | -4.193 dB |
| 2 | 2 | 2.4905 GHz | 2.4950 GHz | 1.000 MHz | 2.494775000 GHz | -28.59 dBm | -15.59 dB |
| 3 | 3 | 2.4950 GHz | 2.4960 GHz | 1.000 MHz | 2.496000000 GHz | -26.13 dBm | -13.13 dB |
| 4 | 4 | 2.4960 GHz | 2.6210 GHz | 1.000 MHz | 2.558751004 GHz | 1.236 dBm | -23.76 dB |

**Plot 7-62. Lower ACP Plot (NR Band n41PC3 - 100MHz CP-OFDM-QPSK – Full RB - Ant1)**




| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | Δ Limit |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2.3750 GHz | 2.4905 GHz | 1.000 MHz | 2.486984783 GHz | -29.21 dBm | -4.212 dB |
| 2 | 2 | 2.4905 GHz | 2.4960 GHz | 1.000 MHz | 2.494845000 GHz | -28.08 dBm | -15.08 dB |
| 3 | 3 | 2.4960 GHz | 2.4990 GHz | 1.000 MHz | 2.498880000 GHz | -27.76 dBm | -17.76 dB |
| 4 | 4 | 2.4990 GHz | 2.5000 GHz | 1.000 MHz | 2.500000000 GHz | -25.27 dBm | -15.27 dB |
| 5 | 5 | 2.5000 GHz | 2.6250 GHz | 1.000 MHz | 2.558232932 GHz | 1.317 dBm | -23.68 dB |

**Plot 7-63. Lower ACP Plot (NR Band n41PC3 - 100MHz CP-OFDM-QPSK – Full RB - Ant1) - ISED**

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| Spur | Range | Start Freq | Stop Freq | RBW | Frequency | Amplitude | Δ Limit |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2.5650 GHz | 2.6900 GHz | 1.000 MHz | 2.595120482 GHz | 2.032 dBm | -22.97 dB |
| 2 | 2 | 2.6900 GHz | 2.6910 GHz | 1.000 MHz | 2.690000000 GHz | -25.49 dBm | -15.49 dB |
| 3 | 3 | 2.6910 GHz | 2.6950 GHz | 1.000 MHz | 2.691080000 GHz | -26.83 dBm | -16.83 dB |
| 4 | 4 | 2.6950 GHz | 2.7900 GHz | 1.000 MHz | 2.696005291 GHz | -27.32 dBm | -14.32 dB |
| 5 | 5 | 2.7900 GHz | 2.8150 GHz | 1.000 MHz | 2.798000000 GHz | -53.96 dBm | -28.96 dB |

**Plot 7-64. Upper ACP Plot (NR Band n41PC3 - 100MHz CP-OFDM-QPSK – Full RB - Ant1)**




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| Mode | Bandwidth | Channel | Test Case | Level [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| LTE-B41PC3 | 20MHz | Low | Band Edge | -28.31 | -25 | -3.31 |
| | | High | Band Edge | -39.67 | -25 | -14.67 |
| | 15MHz | Low | Band Edge | -28.32 | -25 | -3.32 |
| | | High | Band Edge | -28.34 | -13 | -15.34 |
| | 10MHz | Low | Band Edge | -27.73 | -25 | -2.73 |
| | | High | Band Edge | -22.29 | -10 | -12.29 |
| | 5MHz | Low | Band Edge | -25.64 | -13 | -12.64 |
| | | High | Band Edge | -22.49 | -10 | -12.49 |

**Table 7-16. Conducted Band Edge Test Results – LTE – Ant 2**




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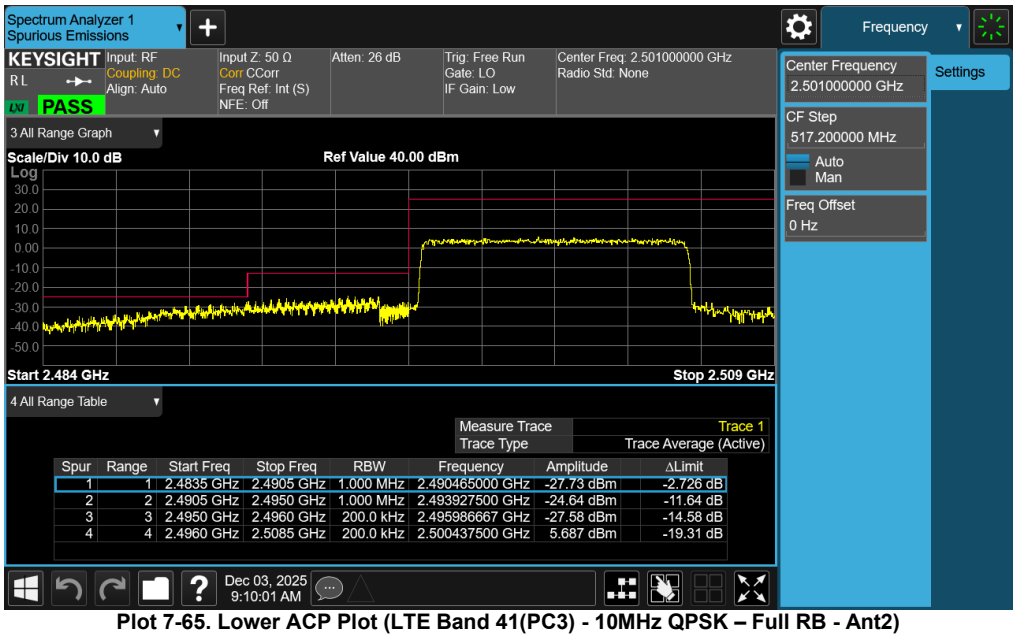
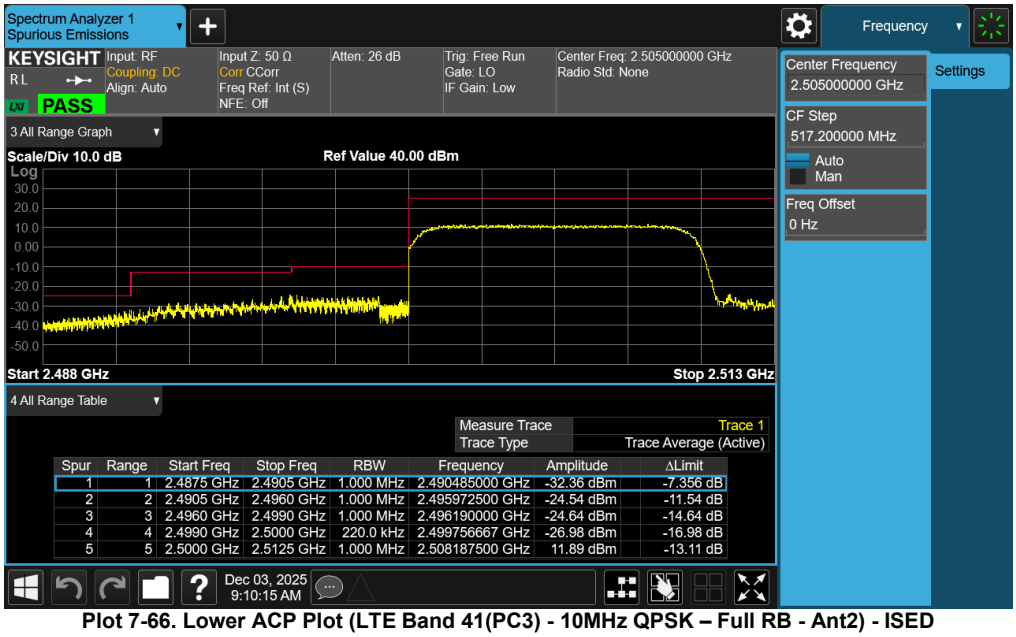
## LTE Band 41(PC3) – Ant2




**Plot 7-65. Lower ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB - Ant2)**




**Plot 7-66. Lower ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB - Ant2) - ISED**

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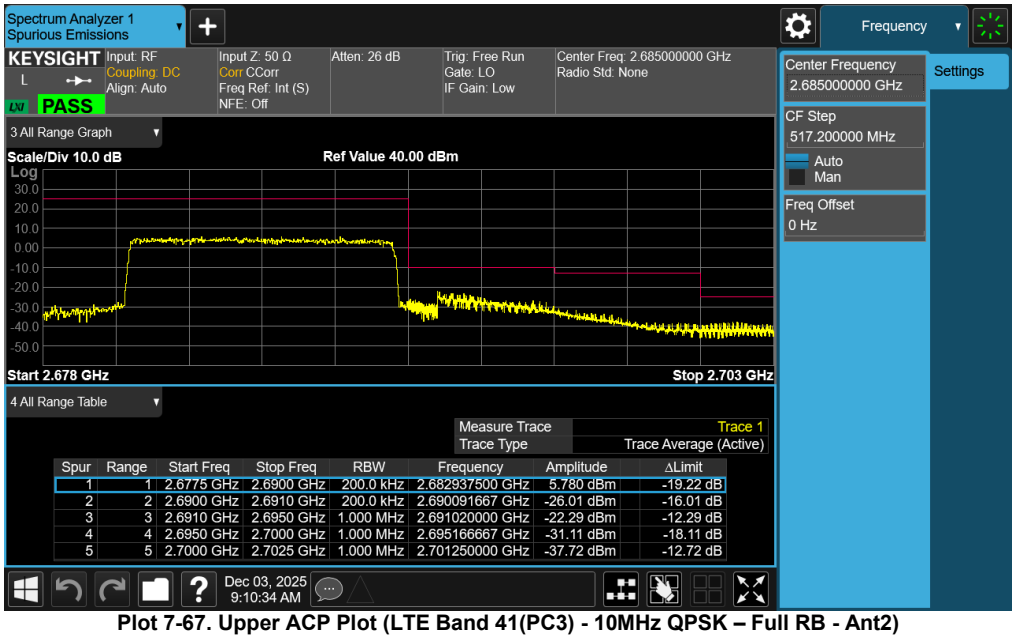


**Plot 7-67. Upper ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB - Ant2)**




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## 7.6 Radiated Power (EIRP)

**Test Overview**

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26:2015 with the EUT transmitting into an integral antenna. Measurements are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

**Test Procedures Used**

ANSI C63.26:2015 – Section 5.2.4.4

**Test Settings**

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration.
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize.



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## Test Setup

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

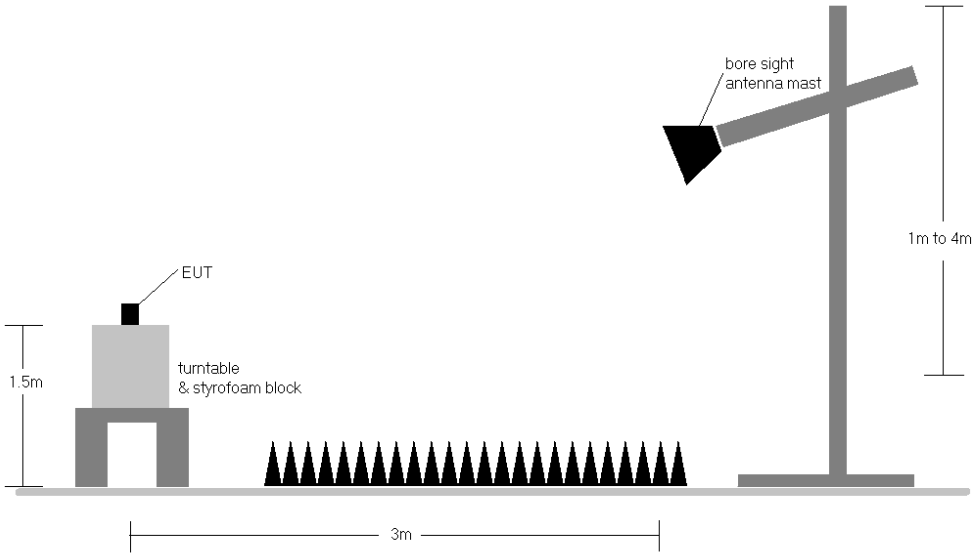


**Figure 7-5. Radiated Test Setup >1GHz**

## Test Notes

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

2) This unit was tested with its standard battery.

3) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.



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| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 MHz | QPSK | 2506.0 | H | 127 | 209 | 4.17 | 1 / 99 | 17.35 | 21.52 | 0.142 | 33.01 | -11.49 |
| | QPSK | 2593.0 | H | 112 | 211 | 4.00 | 1 / 99 | 19.26 | **23.26** | 0.212 | 33.01 | -9.75 |
| | QPSK | 2680.0 | H | 120 | 209 | 4.50 | 1 / 99 | 17.61 | 22.11 | 0.163 | 33.01 | -10.90 |
| | 16-QAM | 2593.0 | H | 112 | 211 | 4.00 | 1 / 99 | 18.51 | 22.51 | 0.178 | 33.01 | -10.50 |
| 15 MHz | QPSK | 2503.5 | H | 127 | 209 | 4.17 | 1 / 0 | 17.36 | 21.53 | 0.142 | 33.01 | -11.48 |
| | QPSK | 2593.0 | H | 112 | 211 | 4.00 | 1 / 0 | 19.28 | **23.28** | 0.213 | 33.01 | -9.73 |
| | QPSK | 2682.5 | H | 120 | 209 | 4.51 | 1 / 74 | 17.60 | 22.11 | 0.163 | 33.01 | -10.90 |
| | 16-QAM | 2593.0 | H | 112 | 211 | 4.00 | 1 / 0 | 18.57 | 22.57 | 0.181 | 33.01 | -10.44 |
| 10 MHz | QPSK | 2501.0 | H | 127 | 209 | 4.17 | 1 / 0 | 17.34 | 21.51 | 0.142 | 33.01 | -11.50 |
| | QPSK | 2593.0 | H | 112 | 211 | 4.00 | 1 / 0 | 19.30 | **23.30** | 0.214 | 33.01 | -9.71 |
| | QPSK | 2685.0 | H | 120 | 209 | 4.52 | 1 / 0 | 17.62 | 22.14 | 0.164 | 33.01 | -10.87 |
| | 16-QAM | 2593.0 | H | 112 | 211 | 4.00 | 1 / 0 | 18.56 | 22.56 | 0.180 | 33.01 | -10.45 |
| 5 MHz | QPSK | 2498.5 | H | 127 | 209 | 4.16 | 1 / 24 | 17.34 | 21.50 | 0.141 | 33.01 | -11.51 |
| | QPSK | 2593.0 | H | 112 | 211 | 4.00 | 1 / 24 | 19.35 | **23.35** | 0.216 | 33.01 | -9.66 |
| | QPSK | 2687.5 | H | 120 | 209 | 4.53 | 1 / 0 | 17.59 | 22.12 | 0.163 | 33.01 | -10.89 |
| | 16-QAM | 2593.0 | H | 112 | 211 | 4.00 | 1 / 24 | 18.58 | 22.58 | 0.181 | 33.01 | -10.43 |
| 20 MHz | Opposite Pol. | 2593.0 | V | 225 | 283 | 4.14 | 1 / 99 | 14.17 | 18.31 | 0.068 | 33.01 | -14.70 |

**Table 7-17. EIRP Data (LTE Band 41(PC3)) – Ant1**




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| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 MHz | π/2 BPSK | 2546.01 | H | 108 | 203 | 4.19 | 1 / 271 | 19.28 | 23.47 | 0.222 | 33.01 | -9.54 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 4.00 | 1 / 136 | 18.86 | 22.86 | 0.193 | 33.01 | -10.15 |
| | π/2 BPSK | 2640.00 | H | 112 | 201 | 4.31 | 1 / 1 | 19.31 | 23.62 | 0.230 | 33.01 | -9.39 |
| | QPSK | 2546.01 | H | 108 | 203 | 4.19 | 1 / 271 | 19.06 | 23.25 | 0.211 | 33.01 | -9.76 |
| | QPSK | 2592.99 | H | 112 | 201 | 4.00 | 1 / 136 | 18.74 | 22.74 | 0.188 | 33.01 | -10.27 |
| | QPSK | 2640.00 | H | 112 | 201 | 4.31 | 1 / 1 | 19.50 | **23.81** | 0.241 | 33.01 | -9.20 |
| | 16-QAM | 2640.00 | H | 112 | 201 | 4.31 | 1 / 1 | 18.28 | 22.59 | 0.182 | 33.01 | -10.42 |
| 90 MHz | π/2 BPSK | 2541.00 | H | 108 | 203 | 0.00 | 1 / 122 | 23.49 | 23.49 | 0.223 | 33.01 | -9.52 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 122 | 22.85 | 22.85 | 0.193 | 33.01 | -10.16 |
| | π/2 BPSK | 2644.98 | H | 112 | 201 | 0.00 | 1 / 122 | 23.63 | 23.63 | 0.231 | 33.01 | -9.38 |
| | QPSK | 2541.00 | H | 108 | 203 | 0.00 | 1 / 1 | 23.19 | 23.19 | 0.209 | 33.01 | -9.82 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 122 | 22.73 | 22.73 | 0.187 | 33.01 | -10.28 |
| | QPSK | 2644.98 | H | 112 | 201 | 0.00 | 1 / 122 | 24.00 | **24.00** | 0.251 | 33.01 | -9.01 |
| | 16-QAM | 2644.98 | H | 112 | 201 | 0.00 | 1 / 122 | 22.75 | 22.75 | 0.188 | 33.01 | -10.26 |
| 80 MHz | π/2 BPSK | 2536.02 | H | 108 | 203 | 0.00 | 1 / 1 | 23.47 | 23.47 | 0.222 | 33.01 | -9.54 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 108 | 22.87 | 22.87 | 0.194 | 33.01 | -10.14 |
| | π/2 BPSK | 2649.99 | H | 112 | 201 | 0.00 | 1 / 108 | 23.66 | 23.66 | 0.232 | 33.01 | -9.35 |
| | QPSK | 2536.02 | H | 108 | 203 | 0.00 | 1 / 1 | 23.21 | 23.21 | 0.209 | 33.01 | -9.80 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 108 | 22.69 | 22.69 | 0.186 | 33.01 | -10.32 |
| | QPSK | 2649.99 | H | 112 | 201 | 0.00 | 1 / 108 | 24.01 | **24.01** | 0.252 | 33.01 | -9.00 |
| | 16-QAM | 2649.99 | H | 112 | 201 | 0.00 | 1 / 108 | 22.72 | 22.72 | 0.187 | 33.01 | -10.29 |
| 70 MHz | π/2 BPSK | 2531.01 | H | 108 | 203 | 0.00 | 1 / 1 | 23.45 | 23.45 | 0.221 | 33.01 | -9.56 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 94 | 22.86 | 22.86 | 0.193 | 33.01 | -10.15 |
| | π/2 BPSK | 2655.00 | H | 112 | 201 | 0.00 | 1 / 94 | 23.79 | 23.79 | 0.239 | 33.01 | -9.22 |
| | QPSK | 2531.01 | H | 108 | 203 | 0.00 | 1 / 1 | 23.20 | 23.20 | 0.209 | 33.01 | -9.81 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 94 | 22.69 | 22.69 | 0.186 | 33.01 | -10.32 |
| | QPSK | 2655.00 | H | 112 | 201 | 0.00 | 1 / 94 | 24.01 | **24.01** | 0.252 | 33.01 | -9.00 |
| | 16-QAM | 2655.00 | H | 112 | 201 | 0.00 | 1 / 94 | 22.67 | 22.67 | 0.185 | 33.01 | -10.34 |
| 60 MHz | π/2 BPSK | 2526.00 | H | 108 | 203 | 0.00 | 1 / 1 | 23.41 | 23.41 | 0.219 | 33.01 | -9.60 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 81 | 22.89 | 22.89 | 0.194 | 33.01 | -10.12 |
| | π/2 BPSK | 2659.98 | H | 112 | 201 | 0.00 | 1 / 81 | 23.74 | 23.74 | 0.237 | 33.01 | -9.27 |
| | QPSK | 2526.00 | H | 108 | 203 | 0.00 | 1 / 1 | 23.21 | 23.21 | 0.209 | 33.01 | -9.80 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 81 | 22.82 | 22.82 | 0.191 | 33.01 | -10.19 |
| | QPSK | 2659.98 | H | 112 | 201 | 0.00 | 1 / 81 | 23.92 | **23.92** | 0.247 | 33.01 | -9.09 |
| | 16-QAM | 2659.98 | H | 112 | 201 | 0.00 | 1 / 81 | 22.85 | 22.85 | 0.193 | 33.01 | -10.16 |
| 50 MHz | π/2 BPSK | 2521.02 | H | 108 | 203 | 0.00 | 1 / 66 | 23.56 | 23.56 | 0.227 | 33.01 | -9.45 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 66 | 22.82 | 22.82 | 0.191 | 33.01 | -10.19 |
| | π/2 BPSK | 2664.99 | H | 112 | 201 | 0.00 | 1 / 66 | 23.79 | 23.79 | 0.239 | 33.01 | -9.22 |
| | QPSK | 2521.02 | H | 108 | 203 | 0.00 | 1 / 1 | 23.26 | 23.26 | 0.212 | 33.01 | -9.75 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 66 | 22.71 | 22.71 | 0.187 | 33.01 | -10.30 |
| | QPSK | 2664.99 | H | 112 | 201 | 0.00 | 1 / 66 | 24.01 | **24.01** | 0.252 | 33.01 | -9.00 |
| | 16-QAM | 2664.99 | H | 112 | 201 | 0.00 | 1 / 66 | 22.87 | 22.87 | 0.194 | 33.01 | -10.14 |
| 40 MHz | π/2 BPSK | 2516.01 | H | 108 | 203 | 0.00 | 1 / 53 | 23.35 | 23.35 | 0.216 | 33.01 | -9.66 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 53 | 22.97 | 22.97 | 0.198 | 33.01 | -10.04 |
| | π/2 BPSK | 2670.00 | H | 112 | 201 | 0.00 | 1 / 53 | 23.81 | 23.81 | 0.241 | 33.01 | -9.20 |
| | QPSK | 2516.01 | H | 108 | 203 | 0.00 | 1 / 53 | 23.00 | 23.00 | 0.200 | 33.01 | -10.01 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 53 | 22.75 | 22.75 | 0.188 | 33.01 | -10.26 |
| | QPSK | 2670.00 | H | 112 | 201 | 0.00 | 1 / 53 | 23.99 | **23.99** | 0.251 | 33.01 | -9.02 |
| | 16-QAM | 2670.00 | H | 112 | 201 | 0.00 | 1 / 53 | 22.79 | 22.79 | 0.190 | 33.01 | -10.22 |
| 30 MHz | π/2 BPSK | 2511.00 | H | 108 | 203 | 0.00 | 1 / 39 | 23.39 | 23.39 | 0.218 | 33.01 | -9.62 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 39 | 22.96 | 22.96 | 0.198 | 33.01 | -10.05 |
| | π/2 BPSK | 2674.98 | H | 112 | 201 | 0.00 | 1 / 39 | 23.73 | 23.73 | 0.236 | 33.01 | -9.28 |
| | QPSK | 2511.00 | H | 108 | 203 | 0.00 | 1 / 76 | 23.06 | 23.06 | 0.202 | 33.01 | -9.95 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 39 | 22.76 | 22.76 | 0.189 | 33.01 | -10.25 |
| | QPSK | 2674.98 | H | 112 | 201 | 0.00 | 1 / 39 | 24.08 | **24.08** | 0.256 | 33.01 | -8.93 |
| | 16-QAM | 2674.98 | H | 112 | 201 | 0.00 | 1 / 39 | 22.86 | 22.86 | 0.193 | 33.01 | -10.15 |
| 20 MHz | π/2 BPSK | 2506.02 | H | 108 | 203 | 0.00 | 1 / 49 | 23.34 | 23.34 | 0.216 | 33.01 | -9.67 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 25 | 22.84 | 22.84 | 0.192 | 33.01 | -10.17 |
| | π/2 BPSK | 2679.99 | H | 112 | 201 | 0.00 | 1 / 1 | 23.60 | 23.60 | 0.229 | 33.01 | -9.41 |
| | QPSK | 2506.02 | H | 108 | 203 | 0.00 | 1 / 49 | 23.02 | 23.02 | 0.201 | 33.01 | -9.99 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 25 | 22.71 | 22.71 | 0.187 | 33.01 | -10.30 |
| | QPSK | 2679.99 | H | 112 | 201 | 0.00 | 1 / 1 | 24.00 | **24.00** | 0.251 | 33.01 | -9.01 |
| | 16-QAM | 2679.99 | H | 112 | 201 | 0.00 | 1 / 1 | 22.70 | 22.70 | 0.186 | 33.01 | -10.31 |
| 15 MHz | π/2 BPSK | 2503.50 | H | 108 | 203 | 0.00 | 1 / 19 | 23.30 | 23.30 | 0.214 | 33.01 | -9.71 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 19 | 22.92 | 22.92 | 0.196 | 33.01 | -10.09 |
| | π/2 BPSK | 2682.50 | H | 112 | 201 | 0.00 | 1 / 1 | 23.55 | 23.55 | 0.227 | 33.01 | -9.46 |
| | QPSK | 2503.50 | H | 108 | 203 | 0.00 | 1 / 19 | 22.96 | 22.96 | 0.198 | 33.01 | -10.05 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 19 | 22.81 | 22.81 | 0.191 | 33.01 | -10.20 |
| | QPSK | 2682.50 | H | 112 | 201 | 0.00 | 1 / 1 | 23.94 | 23.94 | 0.248 | 33.01 | -9.07 |
| | 16-QAM | 2503.50 | H | 108 | 203 | 0.00 | 1 / 19 | 22.78 | 22.78 | 0.190 | 33.01 | -10.23 |
| 10 MHz | π/2 BPSK | 2501.00 | H | 108 | 203 | 0.00 | 1 / 22 | 23.44 | 23.44 | 0.221 | 33.01 | -9.57 |
| | π/2 BPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 12 | 22.94 | 22.94 | 0.197 | 33.01 | -10.07 |
| | π/2 BPSK | 2685.00 | H | 112 | 201 | 0.00 | 1 / 1 | 23.40 | 23.40 | 0.219 | 33.01 | -9.61 |
| | QPSK | 2501.00 | H | 108 | 203 | 0.00 | 1 / 22 | 23.12 | 23.12 | 0.205 | 33.01 | -9.89 |
| | QPSK | 2592.99 | H | 112 | 201 | 0.00 | 1 / 12 | 22.82 | 22.82 | 0.191 | 33.01 | -10.19 |
| | QPSK | 2685.00 | H | 112 | 201 | 0.00 | 1 / 1 | 23.80 | **23.80** | 0.240 | 33.01 | -9.21 |
| | 16-QAM | 2501.00 | H | 108 | 203 | 0.00 | 1 / 12 | 22.72 | 22.72 | 0.187 | 33.01 | -10.29 |
| 100 MHz | QPSK (CP-OFDM) | 2640.00 | H | 112 | 201 | 4.31 | 1 / 1 | 18.33 | 22.64 | 0.184 | 33.01 | -10.37 |
| | QPSK (Opposite Pol.) | 2640.00 | V | 227 | 223 | 4.39 | 1 / 1 | 17.92 | 22.31 | 0.170 | 33.01 | -10.70 |

**Table 7-18. EIRP Data (NR Band n41 (PC3)) – Ant1**




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| Bandwidth | Mod. | Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Ant. Gain [dBi] | RB Size/Offset | Substitute Level [dBm] | EIRP [dBm] | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 MHz | QPSK | 2506.0 | H | 158 | 322 | 4.17 | 1 / 50 | 17.71 | 21.88 | 0.154 | 33.01 | -11.13 |
| | QPSK | 2593.0 | H | 143 | 318 | 4.00 | 1 / 50 | 17.98 | **21.98** | 0.158 | 33.01 | -11.03 |
| | QPSK | 2680.0 | H | 168 | 313 | 4.50 | 1 / 0 | 16.53 | 21.03 | 0.127 | 33.01 | -11.98 |
| | 16-QAM | 2593.0 | H | 143 | 318 | 4.00 | 1 / 50 | 16.48 | 20.48 | 0.112 | 33.01 | -12.53 |
| 15 MHz | QPSK | 2503.5 | H | 158 | 322 | 4.17 | 1 / 0 | 17.84 | 22.01 | 0.159 | 33.01 | -11.00 |
| | QPSK | 2593.0 | H | 143 | 318 | 4.00 | 1 / 74 | 18.04 | **22.04** | 0.160 | 33.01 | -10.97 |
| | QPSK | 2682.5 | H | 168 | 313 | 4.51 | 1 / 37 | 16.40 | 20.91 | 0.123 | 33.01 | -12.10 |
| | 16-QAM | 2593.0 | H | 143 | 318 | 4.00 | 1 / 74 | 16.42 | 20.42 | 0.110 | 33.01 | -12.59 |
| 10 MHz | QPSK | 2501.0 | H | 158 | 322 | 4.17 | 1 / 0 | 17.84 | **22.01** | 0.159 | 33.01 | -11.00 |
| | QPSK | 2593.0 | H | 143 | 318 | 4.00 | 1 / 49 | 17.94 | 21.94 | 0.156 | 33.01 | -11.07 |
| | QPSK | 2685.0 | H | 168 | 313 | 4.52 | 1 / 0 | 16.54 | 21.06 | 0.128 | 33.01 | -11.95 |
| | 16-QAM | 2593.0 | H | 143 | 318 | 4.00 | 1 / 49 | 16.57 | 20.57 | 0.114 | 33.01 | -12.44 |
| 5 MHz | QPSK | 2498.5 | H | 158 | 322 | 4.16 | 1 / 0 | 17.83 | **21.99** | 0.158 | 33.01 | -11.02 |
| | QPSK | 2593.0 | H | 143 | 318 | 4.00 | 1 / 24 | 17.94 | 21.94 | 0.156 | 33.01 | -11.07 |
| | QPSK | 2687.5 | H | 168 | 313 | 4.53 | 1 / 0 | 16.48 | 21.01 | 0.126 | 33.01 | -12.00 |
| | 16-QAM | 2593.0 | H | 143 | 318 | 4.00 | 1 / 24 | 16.46 | 20.46 | 0.111 | 33.01 | -12.55 |
| 20 MHz | Opposite Pol. | 2593.0 | V | 139 | 304 | 4.14 | 1 / 99 | 15.79 | 19.93 | 0.098 | 33.01 | -13.08 |

**Table 7-19. EIRP Data (LTE Band 41(PC3)) – Ant2**




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## 7.7 Radiated Spurious Emissions Measurements

**Test Overview**

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26:2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

**Test Procedures Used**

ANSI C63.26:2015 – Section 5.5.4

**Test Settings**

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize



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## Test Setup

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

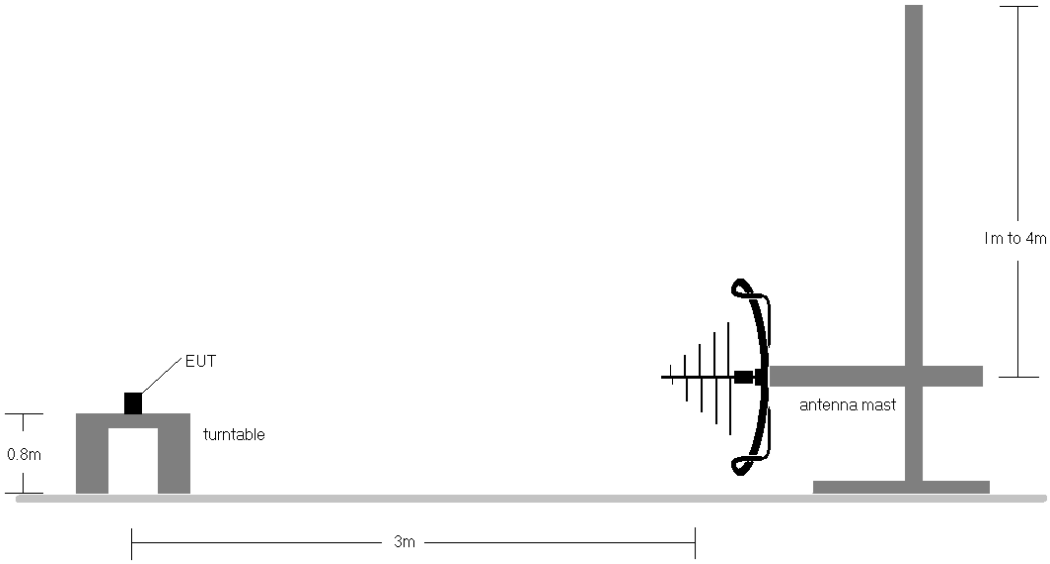


**Figure 7-6. Test Instrument & Measurement Setup < 1GHz**

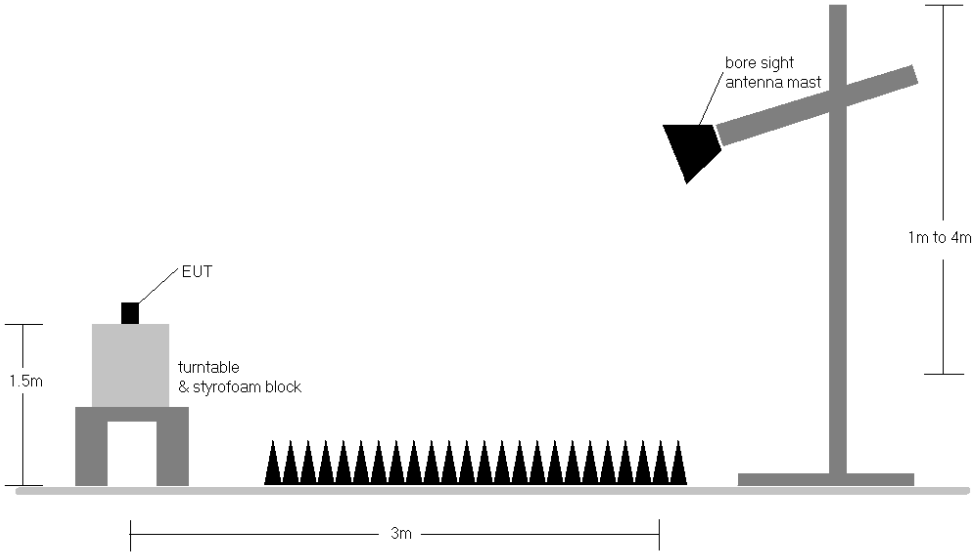


**Figure 7-7. Test Instrument & Measurement Setup >1 GHz**




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## Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26:2015 Section 5.2.7:
   a) E(dBμV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   b) EIRP (dBm) = E(dBμV/m) + 20logD – 104.8; where D is the measurement distance in meters.

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

3) This unit was tested with its standard battery.

4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

5) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

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

7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

8) Spurious emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case. Spurious emissions from the NR carrier device are subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.



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